

SEQUENCE LISTING

<110> Jeak Ling, Ding
Toong Jin, Lam
Eng Hwa, Lim

<120> Recombinant Vitellogenin Enriched Feed

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<150> US 60/425,263
<151> 2002-11-12

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<170> PatentIn version 3.2

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Ser Gly Ile Trp Pro Lys Asp Pro Phe His Pro Ala Thr Lys Leu Thr
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Thr Ala Leu Ala Thr Gln Leu Ser Thr Pro Ile Lys Phe Glu Tyr Thr
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Asp His Ala Arg Tyr Thr Tyr Val His Arg Gly Ser Leu Gln Tyr Glu
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His Gly Ser Glu Ile Leu Gln Thr Pro Ile His Leu Leu Arg Val Thr
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His Ala Glu Ala Gln Ile Val Ser Thr Leu Asn His Leu Val Ala Ser
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Thr Gln Arg Gly Ser Ser His Ser Ser Ala Arg Ser Phe Asp Ser
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Gly Tyr Gln Leu Ala Ala Tyr Leu Asp Lys Gln Thr Asn Arg Leu
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Leu Ala His Leu Gln Glu Gly Pro Ser Ser Gly Ser Ala Phe Lys Ala
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Pro Thr Ser Val Pro Val Pro Gln Glu Asn Leu Ile Lys Gly Leu Ile
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Ser Ala Leu Gln Leu Asp Thr Ser Ala His Arg Val Ile His Asp Ser
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 Leu Glu Gly Lys Val Glu Ile Ser Thr Tyr Leu Arg Thr His Ile Val
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 Lys Asn Leu Lys Thr Leu Ala Lys Leu Arg Asp Arg His Val Arg Ala
 675 680 685
 Val Leu Phe Ser Ile Leu Arg Asn Thr Ala Glu Pro Tyr Pro Val Arg
 690 695 700
 Val Ala Ala Ile Gln Ser Ile Phe Ile Ser His Pro Thr Gly Glu Met
 705 710 715 720
 Met Gln Ala Met Ala Glu Met Thr His Asn Asp Pro Ser Val Glu Val
 725 730 735
 Arg Ala Val Leu Lys Ser Ala Ile Leu Ser Ala Ala Glu Leu Gln His
 740 745 750
 Pro Arg Asn Phe Tyr Leu Ser Arg Thr Ala Gln Ala Ala Arg Tyr Leu
 755 760 765
 Val Thr Asn Glu Glu Phe Gly Tyr Gln His Ser Phe Lys Phe Ile Asp
 770 775 780
 Asp Ser Tyr Asp Glu Asp Asn Asp Ile Gly Thr Phe Val Ile Ser His
 785 790 795 800
 Ile Gly Ser Glu Asp Ser Leu Leu Pro Lys Asp Phe Lys Ile Val Thr
 805 810 815
 Asn Ser Lys Gly Gly Ala Trp Glu Arg Asn Thr Ile Glu Ala Ser Phe
 820 825 830

Ser Ser Ala Glu Arg Phe Leu Asp Tyr Leu Arg Asp Ser Val Phe Ala
 835 840 845
 Pro His Pro Lys Phe Asp Arg Ala His Lys Tyr Ser Ala Glu Lys Ile
 850 855 860
 Ala Lys Leu Leu Asn Ile Lys Asn Asp Glu Glu Glu Pro Leu Glu Ala
 865 870 875 880
 Ser Phe Tyr Val Asp Phe Met Asn Asn Gln Arg Leu Phe Ser Phe Ser
 885 890 895
 Glu Ser Asp Leu Gln Gln Leu Ser Gln Tyr Ile Ser Glu Tyr Met Lys
 900 905 910
 Lys Val Glu Ser Gly Ala Glu Lys His Tyr Thr Lys Val Tyr Asn Gln
 915 920 925
 Asp Gln Val Ser Ile Met Phe Pro Val Ala Ser Gly Met Pro Phe Ile
 930 935 940
 Phe Lys Tyr Lys Glu Pro Ala Val Ile His Phe Gln Ser Lys Leu Lys
 945 950 955 960
 Gly Lys Phe Ser Phe Pro Ser Lys Asp Asn Lys Tyr Tyr Glu Ala Asn
 965 970 975
 Met Ile Lys Asp Val Gln Phe Thr Tyr Ala Ile Asn Ile Asp Gly Asn
 980 985 990
 Val Gly Phe Met Asp Thr Leu Ser Asn Gln Tyr Ser Ser Val Gly Val
 995 1000 1005
 Val Asn Lys Leu Gln Phe Asn Ile Pro Phe Lys Phe Gly Ile Glu
 1010 1015 1020
 Ile Lys Ser Gly Leu Ile Lys Phe Arg Val Glu Pro Leu His Pro
 1025 1030 1035
 Asp Gln Asp Gln Thr Leu Val His Tyr Ser Val Trp Pro Tyr Ser
 1040 1045 1050
 Ala Ser Gln Lys Lys Asp Ser Leu Val Ala Ile Ser Gln Asp Pro
 1055 1060 1065
 Ala Thr Lys Ile Val Glu Arg Arg Ser Lys Val Phe Ser Val Asp
 1070 1075 1080
 Ser Lys Tyr Gly Gln Ser Thr His Ala Val Ile Tyr Ala Gln Gly
 1085 1090 1095

Tyr Thr Tyr Ser Ser Asp Trp Arg Asn Phe Gly Ala Lys Phe Thr
 1100 1105 1110
 Ser Arg Asp Tyr Phe Thr Asn Leu Ala Ser Leu Leu Thr Gln Glu
 1115 1120 1125
 Asp Ile Ala Leu Thr His Phe Asn Leu Lys His Leu Cys Lys Gln
 1130 1135 1140
 Ser Gln Ser Lys Ala Leu Thr Ile Thr Ala Tyr Tyr Asp Glu Tyr
 1145 1150 1155
 Tyr Asn Gln Gln Asn Ser Gly Ile Leu Thr Asp Ala Thr Asp Arg
 1160 1165 1170
 Asn Asp Leu Ser Pro Asn Ser Glu Thr Arg Arg Ala Glu Met Val
 1175 1180 1185
 Lys Leu Val Ser Ala Gly Ile Asn Lys Ala Arg Val Arg Val Val
 1190 1195 1200
 Asp Leu Ser Ala Ser Phe Glu Gly Ser Gln Asp Gln Asn Tyr Val
 1205 1210 1215
 Leu Thr Gly Thr Trp Gly Asp Ser Pro Val Asp Ser Lys Val Gln
 1220 1225 1230
 Gly Met Leu Phe Ala Gly Thr Lys Ser Ala Thr Gln Gly Asn Gln
 1235 1240 1245
 Gln Ile Asn Ala Val Phe Ala Thr Thr Lys Pro Glu Ile His Ser
 1250 1255 1260
 Leu Ser Phe Ser Lys Pro Leu Gln Ser Asp Leu Arg Ala Pro Phe
 1265 1270 1275
 Gly Met His Phe Lys Tyr Gly Gln Ser Gly Glu Ile Arg Val Ser
 1280 1285 1290
 Gly Ser Phe Asp Arg Thr Lys Lys Tyr Thr Thr Glu Leu Glu Asn
 1295 1300 1305
 His Pro Leu Ala Lys Gln Cys Ser Gln Gln Thr Thr Leu Asn Asn
 1310 1315 1320
 Phe Tyr Gln Asp Ser Cys His Lys Ala Ile Val Met Ala His Ala
 1325 1330 1335
 Pro Asp His Val Glu Phe Ser Val Ser Phe Gln Asp Met Ser Pro
 1340 1345 1350
 Gln Tyr Arg Asn Phe Ser Tyr His Thr Tyr Arg Leu Tyr Glu Tyr
 1355 1360 1365

Leu Gly Tyr Trp Tyr Thr Glu Ala Asn Pro Leu Lys Leu Thr Gln
 1370 1375 1380
 Asn Gly Lys Met Asp Phe Lys Ile Asp Phe Ser Tyr Phe Asp Arg
 1385 1390 1395
 Thr Tyr Thr Val Asp Ile Ala Ser Pro Ser Gly Glu Ala Arg Met
 1400 1405 1410
 Arg Asp Met Pro Ile Ala Thr Met Ala Pro Gly Ala Leu Ser Phe
 1415 1420 1425
 Tyr Gln Pro Leu Lys Ala Tyr Glu Leu Val Ala Asn Tyr Phe Thr
 1430 1435 1440
 Gly His Gln Tyr Gln Pro Tyr Cys Ser Ile Asp Gly Thr Arg Ile
 1445 1450 1455
 His Thr Phe Ser Asn Arg Ser Tyr Glu Tyr Pro Leu Ser Arg Ser
 1460 1465 1470
 Trp His Val Val Met Gln Asp Glu Ser Thr Gln Arg Gly Asn Trp
 1475 1480 1485
 His Glu Leu Ala Ile Leu Ser Arg Arg Gln Gln Arg Asp Gln Gln
 1490 1495 1500
 Glu Ile Tyr Ile Ser Tyr Lys Ser Glu Ser Gly Gln Asp Leu Glu
 1505 1510 1515
 Ile Glu Ile Gln Pro Ala Ser Gly Asp Ser Ala Tyr Gln Val Lys
 1520 1525 1530
 Val Thr Thr Asn Thr Lys Lys Ile Thr Asp Asp Asp Leu Thr Met
 1535 1540 1545
 Tyr Trp Asp Asp Val Lys Glu Gln Pro Phe Leu Gln Tyr His Thr
 1550 1555 1560
 His Lys Asp Gly Val Leu Val Ile Asn Ile Glu Asp Asp Arg Ile
 1565 1570 1575
 Arg Ala Ile Tyr Asp Gly Gln Arg Phe Val Val Phe Thr Gln Asp
 1580 1585 1590
 Tyr Arg Asn Ser Thr Arg Gly Ile Cys Gly Arg Met Ser Gly Glu
 1595 1600 1605
 Gln Arg Asp Asp Tyr Leu Thr Pro Glu Gly Leu Val Asp Lys Pro
 1610 1615 1620

Glu Leu Tyr Ala Ala Ala Tyr Ser Leu Asn Glu Glu Asn Ser Asp
1625 1630 1635

Pro Lys Thr Gln Glu Leu Lys Ala Leu Ala Thr Gln Gln Ala Tyr
1640 1645 1650

Tyr Pro Glu Tyr Lys Tyr Thr Ser Ile Leu Arg Ser Asp Pro Thr
1655 1660 1665

Trp Gln Glu Glu Ser Gln Ser Cys Gly Glu Asp Gln Trp Gln Ser
1670 1675 1680

Glu Thr Val Tyr Lys Ser Arg Ser Tyr Asp Lys His Lys Gly Ala
1685 1690 1695

Cys Glu Val Arg Gln Gln Val Gln Phe Tyr Glu Asn His Gly Asp
1700 1705 1710

Ile Cys Ile Thr Thr Ser Arg Val Pro Ser Cys Gln Ser His Cys
1715 1720 1725

Arg Ala Gly Asp Tyr Lys Ile Gln His Val Gln Val Thr Cys Lys
1730 1735 1740

Ser Lys Leu Asp His Asp Phe Arg Met Tyr Lys Glu Gln Ile Lys
1745 1750 1755

Lys Gly Gln Asn Pro Glu Val Ser Gly Ile Pro Ser Val Lys Gln
1760 1765 1770

Phe Lys Val Pro Val Thr Cys Gln Pro
1775 1780

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<212> PRT
<213> Lymantria dispar

<400> 4

Met Arg Leu Leu Leu Ile Ser Ala Phe Ile Ala Val Val Ser Ser Ser
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Pro Leu Thr Glu Pro Gln Pro Val His Gln Gln Ser Pro Trp Gln Asn
20 25 30

Gly Lys Gln Tyr Leu Tyr Glu Val Asn Ser His Thr Leu Ser His Phe
35 40 45

Tyr Glu Gly Thr Ser Ser Gly Asn Ala Phe Lys Ala Asn Phe Ile Ile
50 55 60

Arg Val Thr Ala Gln Gly Leu Leu Gln Ala Lys Leu Glu Glu Pro Arg
65 70 75 80

Arg Ala Gln Phe His Gln Lys Leu Asp Asn Lys Met Gln Ile Pro Ala
 85 90 95
 Asp Leu Lys Tyr Thr Asn Val Val Asn Leu Asp Gln Pro Phe Glu Ile
 100 105 110
 Ser Phe Asp Gly Gly Arg Ile Leu Ser Leu Arg Leu Pro Glu Val Leu
 115 120 125
 Ser Val Ala Asn Glu Asn Leu Leu Lys Gly Leu Ile Ser Thr Leu Gln
 130 135 140
 Val Asp Leu Thr Asn Tyr Arg Leu Val Asn Arg Ser Gln Asp Ser Tyr
 145 150 155 160
 Asp Lys Asn Ser Gln Gln Gly Leu Phe Ser Lys Phe Glu Thr Asp Val
 165 170 175
 Thr Gly Asp Cys Glu Thr Val Tyr Ser Val Ser Pro Val Asn Ala Glu
 180 185 190
 Trp Arg Arg Glu Val Pro His Phe Ala Ser Asp Ser Ala Pro Ile Gln
 195 200 205
 Ile Thr Lys Ser Lys Asn Tyr Asn Arg Cys His Gln Cys Ile Ile Tyr
 210 215 220
 Asn Phe Gly Val Pro Arg Gly Ala Leu Trp Thr Gly Ile Ala His Gly
 225 230 235 240
 Asn Thr Glu Lys Gln Phe Ile Ser His Thr Thr Val Ser Arg Ile Leu
 245 250 255
 Val Gly His Gln Gly Ile Tyr Asn Thr Glu Thr Thr Ser Ser Val Asn
 260 265 270
 Val His Pro His Ile His Gly Arg Gln Lys Ala Glu Val His Ser Tyr
 275 280 285
 Ile Gln Met Arg Leu Lys Ser Ile Glu Glu Asn Pro Gly Thr Asn Trp
 290 295 300
 Gln Lys Pro Glu Ala Thr Arg His Val Lys Ser Leu Leu His Ser Met
 305 310 315 320
 Leu Thr Lys Gln Val Gln Asn Ser Tyr Gln Ala Ser Ser Glu Ser Asn
 325 330 335
 Glu Glu Thr Glu Gly Ser Thr Tyr Thr Ala Gln Gln Pro Tyr Glu Ala
 340 345 350
 Tyr Asp Gly Cys Tyr Tyr Glu Ser Ser Ser Tyr Leu Asp Ser Ser Asn

355	360	365
Phe Val Asn Asn Glu Gln Leu Lys Tyr Asn Val	Pro Asp Tyr Ala Ala	
370	375	380
Ile Leu Leu His Thr Gln Pro His Val Asp Lys Lys Gln Asn Ala Met		
385	390	395
Ser Ala Gln Lys Leu Leu Gln Asp Leu Ala Gln Gln Leu Gln Asn Pro		
	405	410
Ser Thr Met Pro Gln Asn Glu Phe Leu Thr Lys Phe Asn Ile Leu Val		
	420	425
Arg Leu Ile Ser Thr Met Thr Thr Asp Gln Leu Ala Gln Phe Ser Arg		
	435	440
Gly Ile Glu Val Gly Lys Ala Ser Asn Lys Ile Ala Lys Val Asp Met		
	450	455
Trp Phe Ile Phe Arg Asp Ala Val Ile Gln Ala Gly Thr Gln Pro Ala		
	465	470
Phe Gln Leu Ile Glu Thr Trp Ile Lys Thr Lys Lys Ile Gln Gly Phe		
	485	490
Leu Ala Ala Glu Val Ile Ser Ser Leu Ala Lys Thr Leu Arg His Leu		
	500	505
Thr Lys Asp Thr Met Lys Gln Phe Phe Glu Leu Ala Leu Cys Pro Glu		
	515	520
Val Leu Glu Gln Lys Tyr Leu Asn Ser Ser Ala Leu Ile Ala Ala Ala		
	530	535
Glu Phe Ile Arg Leu Gly Ser Ile Asp Tyr Glu His Ser Tyr Pro Tyr		
	545	550
Tyr Pro Pro Tyr Val His Gly Arg Phe Pro Leu Lys Asn Asp Arg Phe		
	565	570
Ile Ile Glu Asn Ile Leu Pro Arg Leu Ser Gln Leu Leu Lys Gln Ala		
	580	585
Val Glu Gln Glu Asp Tyr Gly Lys Thr Leu Val Ile Val Lys Ala Ile		
	595	600
Gly Thr Leu Gly His Arg Glu Ile Leu Lys Val Phe Thr Pro Tyr Leu		
	610	615
Glu Gly Gln Ile Lys Val Ser Thr Tyr Leu Arg Val Gln Met Ile Leu		
	625	630
		635
		640

Ala Leu Lys Pro Leu Ala Glu Gln Lys Asp Arg Tyr Val Arg Ser Ala
645 650 655

Leu Phe Ser Ile Leu Met Asn Thr Ala Glu Pro Tyr Glu Val Arg Val
660 665 670

Ala Ala Ala Met Ile Leu Phe Leu Asn Glu Pro Thr Thr Asp Met Leu
675 680 685

Arg Val Met Ala Gln Leu Thr Asn Asp Asp Pro Ser Ile His Val Arg
690 695 700

Ala Val Leu Lys Ser Ser Ile Glu Thr Ala Ala Thr Leu Glu Gly Pro
705 710 715 720

Lys Tyr Trp His Leu Ala Lys Ala Ala Gln Ser Val Lys Glu Leu Val
725 730 735

Thr Ser Glu Asp Phe Gly Tyr Ala Tyr Ser Ala Ala Trp Phe Phe Ala
740 745 750

Lys Asn Phe Asp Ser Glu Glu Val Thr Arg Tyr Arg Leu Ala Asn Tyr
755 760 765

Ile Gly Ser Asp Gly Ser Leu Ile Pro Asn Leu Phe Ser Leu Thr Trp
770 775 780

Asn Asn Arg Phe Tyr Gly Arg Gly Ala Glu Asn Thr Val Gly Phe Thr
785 790 795 800

Ser Ser Asn Val Gln Asp Ile Phe Asp Tyr Ile Lys Gln Leu Ile Leu
805 810 815

Gln Pro Arg Lys Ser Thr Thr Glu His Gln Phe Ser Ala Asp Lys Ile
820 825 830

Ala Lys Leu Leu Asn Ile Lys Gln Asp Pro Leu Gln Pro Ile Glu Ser
835 840 845

Ser Ile Tyr Tyr Lys Ile Phe Asp Lys Glu Phe Phe Trp Pro Leu Asp
850 855 860

Gln Pro Asn Ile Lys Gln Leu Val Asn Asp Val Phe Gly Phe Val Lys
865 870 875 880

Glu Leu Glu Asn Gly Val Gln Ser His Tyr Thr Lys Val Phe Tyr Ser
885 890 895

Lys Gln Val Ser Val Ile Phe Pro Ile Ala Thr Gly Glu Pro Phe Val
900 905 910

Phe Glu Tyr Lys Glu Pro Val Val Val His Leu Gln Thr Lys Leu Ser

915	920	925
Gly Lys Ile Asn Tyr Pro Pro Thr Ser Lys Asp Ile Ser Ser Asn Ile 930 935 940		
Gln Thr Glu Ile Gln Phe Thr Phe Ala Arg Asn Met Glu Gly Ser Val 945 950 955 960		
Gly Phe Ile Asp Thr Asn Thr Asn Gln Leu Ala Asn Ile Gly Val Val 965 970 975		
Lys Lys Tyr Gln Ile Asn Leu Pro Val Lys Ile Asn Val Ile Gly Gln 980 985 990		
Ser Gly Lys Phe Gln Val Lys Leu Glu Pro Leu His Thr Asp Gln Asp 995 1000 1005		
) Leu Ile Leu Leu His His Ser Val Trp Pro Tyr Ser Ala Tyr Gln 1010 1015 1020		
Gln Thr Asn Thr Thr Thr Thr Pro Ser His Asp Leu Lys Thr Lys 1025 1030 1035		
Leu Ile Lys Arg Leu Lys Lys Val Ala Glu Met Asn Lys Glu Leu 1040 1045 1050		
Gly Gln Gln Phe Asn Leu Leu Phe Lys Tyr His Gly Phe Ser Ser 1055 1060 1065		
Ser Asn Thr Tyr Arg Asn Ala Gly Asp Phe Val Gln Asp Ala Leu 1070 1075 1080		
Asp Phe Ser Asp Phe Met Ser Leu Asn Asp Leu Ala Glu Thr His 1085 1090 1095		
) Tyr Glu Phe Thr Tyr Ser Gly Lys Gln Ser Lys Thr Lys Ala Val 1100 1105 1110		
Thr Phe Thr Ala Ala Tyr Asp Val Ser His Asn Leu Asn Ser Thr 1115 1120 1125		
Gly Lys Phe Gly Glu Ala His Arg Phe Ser Asp Val Thr Pro Asn 1130 1135 1140		
Ser Ala Pro Arg Arg Glu Glu Ile Val Lys Arg Val Ser Ser Gly 1145 1150 1155		
Ile Lys Thr Ala Thr Ala Arg Val Ile Asp Phe Ser Ala Ser Phe 1160 1165 1170		
Glu Gly Leu Gln Lys Leu Glu Tyr Ala Val Thr Ala Ala Val Ala 1175 1180 1185		

Gly Ser Met Val Asp Leu Lys Thr Gln Phe Ala Val Phe Met Gly
 1190 1195 1200
 Ser Gln Ser Asp Asn Gly Gln Ile Asn Ala Val Phe Lys Leu Gln
 1205 1210 1215
 Lys Pro Gln Met Ala Pro Leu Asp Phe His Lys Ala Leu Asn Ser
 1220 1225 1230
 Ala Val Lys Tyr Leu Ile Glu Ala Asp Val Thr Tyr Gly Glu Asn
 1235 1240 1245
 Ser Asn Ile Asn Phe Lys Gly His Thr Glu Arg Ser Gln Glu Tyr
 1250 1255 1260
 Ala Glu Gln Leu Lys Asn Ser Leu Trp Ala Asn Gln Cys Ala Gln
 1265 1270 1275
 Glu Asn Ala Gln Gln Asn Lys Phe Gln Leu Gly Cys His Asn Val
 1280 1285 1290
 Leu Ile Glu Ser His Ala Pro Asp Arg Phe Lys Ala Ser Ile Thr
 1295 1300 1305
 Tyr Lys His Ile Pro Ala Ala His Thr Ala Leu Leu Asp Ser Tyr
 1310 1315 1320
 Ile Gln Gly Leu Trp Ser Lys Gly Phe Glu Tyr Asn Pro Ser Lys
 1325 1330 1335
 Arg Leu Pro Val Gly Gln Ile Glu Leu Glu Ala Asn Ala Ser Tyr
 1340 1345 1350
 Val Asp Gln Thr Ala Asn Val Ala Trp Thr Trp Trp Asn Gly Gln
 1355 1360 1365
 Val Arg Phe Asn Asn Leu Pro Asn Thr Tyr Ile Thr Pro Ala Leu
 1370 1375 1380
 Thr Thr Ala Tyr Gln Pro Ile Gly Ile Glu Asp Ser Trp Thr His
 1385 1390 1395
 Phe Ala Asn Ser Tyr Ser Tyr His Gln Tyr Glu Pro Phe Cys Thr
 1400 1405 1410
 Val Asp Gly Thr Lys Val Lys Thr Phe Ser Asn Arg Asp Tyr Asn
 1415 1420 1425
 Val Thr Leu Pro Glu Ile Trp Thr Val Leu Met His Ala Gln Thr
 1430 1435 1440
 Asn Trp Glu Glu Leu Val Val Leu Ala Lys Arg Pro Asn Glu Ala

1445		1450		1455
Lys Ala 1460	Lys Arg Glu Ile	Gly 1465	Lys Ile Gly Lys	Leu Asp Leu Tyr 1470
Ile Ser 1475	His Lys Thr Ala	Thr 1480	Gly Lys His Leu	Glu Val Asn Ile 1485
Pro Tyr 1490	Ser Ala Ala Asn	Asn 1495	Lys Ala Asn Val	Lys Val Glu Thr 1500
Asn Ala 1505	Gln Leu Val Ala	Asp 1510	Gly Asp Leu Thr	Thr Tyr Trp Asp 1515
Asp Val 1520	Ala Glu Thr Pro	Leu 1525	Leu Gln Tyr Ser	Asn His Pro Asp 1530
Arg Val 1535	Leu Leu Leu His	Leu 1540	Ser Asp Gly Leu	His Leu Leu Phe 1545
Asp Gly 1550	Lys Arg Gly Ile	Phe 1555	Thr Thr Ser Gln	Tyr Arg Asn Ile 1560
Thr Arg 1565	Gly Ile Cys Gly	Gln 1570	Asn Ser Gly Asp	Pro Leu Asp Asp 1575
Tyr Lys 1580	Thr Pro Leu Gly	Ile 1585	Val Asp His Ser	Gln His Phe Gly 1590
Ala Ala 1595	Phe Thr Leu Asp	Leu 1600	Glu Lys Thr Asn	Ser Gln Ile Gln 1605
Gln Trp 1610	Lys Lys Ile Ala	Gln 1615	Glu Thr Ala Tyr	Gln Pro Lys Leu 1620
Thr His 1625	Thr Val Ile Leu	Arg 1630	Phe Asp Glu Glu	Trp Lys Ile Ala 1635
Gly Glu 1640	Gln Lys Gly Leu	Glu 1645	Trp Gly Ser Gln	Lys Val Tyr Arg 1650
Ser Arg 1655	Ser Tyr Gln Lys	Gln 1660	Arg Gly Pro Cys	Gln Val Gln Asn 1665
Gln Val 1670	Gln Tyr His Glu	Asn 1675	His Gly Glu Ile	Cys Ile Thr Thr 1680
Thr Pro 1685	Ile Ser Ala Cys	Gln 1690	Ser His Cys His	Ser Ser Asn Tyr 1695
Gln Val 1700	Gln Ala Val Gln	Ala 1705	Val Cys Lys Gly	Lys Lys Asp Pro 1710

Glu Phe Arg Met Tyr Lys Asp Gln Ile His Gln Gly Gln Asn Pro
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Gln Val Thr Gly Val Pro Lys Val Glu Gln Tyr Arg Val Pro Thr
 1730 1735 1740

Thr Cys Thr Glu
 1745

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Met Trp Ser Pro Leu Leu Leu Cys Leu Leu Val Gly Ile Ala Ser Ala
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Asp Gln His Ala Trp Lys Thr Gly Gln Glu Tyr Thr Tyr Gln Val Arg
 20 25 30

Gly Arg Thr Leu Ala Ala Leu His Gln Val Ala Asp Gln Tyr Thr Gly
 35 40 45

Ile Ala Leu Lys Ala Gln Leu Lys Cys Gln Pro Lys Gly Ser Asp Ala
 50 55 60

Leu Ser Cys Asn Ile Gln Arg Pro Gln Val Ala Glu Ile His Ala Gln
 65 70 75 80

Leu Pro Gly Gly Trp Asp Ser Pro Leu Pro Glu Lys Lys Thr Asn Tyr
 85 90 95

Gln Lys Phe Glu Leu Ser Glu Lys Pro Phe Glu Ile Lys Phe Lys Asn
 100 105 110

Gly Val Ile Asp Asp Leu Val Val Glu Lys Ser Leu Pro Thr Trp Gln
 115 120 125

Val Asn Ile Ile Lys Ser Ile Ala Ser Gln Leu Gln Val Asp Thr Gln
 130 135 140

Gly Glu Asn Ala Met Lys Ser Arg Tyr Asn Gln Glu Pro Glu Gly Asp
 145 150 155 160

Gln Ala Tyr Ala Thr Tyr Lys Ala Met Glu Asp Thr Val Thr Gly Glu
 165 170 175

Cys Glu Val Leu Tyr Asp Ile Ser Pro Leu Pro Glu Tyr Val Leu Gln
 180 185 190

Thr Lys Pro Glu Leu Ala Pro Val Pro Gln Leu Lys Gly Ser Gly Gln
 195 200 205

Ile Ile Asp Ile Val Lys Thr Ser Asn Phe Ser Asn Cys Glu Gln Arg
 210 215 220
 Met Gly Tyr His Phe Gly Ile Thr Gly Glu Thr Asp Trp Glu Ala Gly
 225 230 235 240
 Ser Asn Ser Met Gly Asp Phe Leu Ala Lys Ser Ser Val Ser Arg Val
 245 250 255
 Val Ile Ser Gly Ser Leu Asp Arg Tyr Thr Ile Gln Ser Ser Val Thr
 260 265 270
 Thr Asn Lys Ile Val Val Ser Pro Asn Leu Lys Tyr Ser Gln Lys Gly
 275 280 285
 Met Val Val Ser Arg Leu Asn Ile Thr Leu Asp Ser Val Asn Ala Ala
 290 295 300
 Ser Gly Ser Pro Arg Ser Pro Ser Glu Pro Glu Ser Thr Gly Asn Leu
 305 310 315 320
 Val Tyr Ser Tyr Asn Ser Pro Phe Glu Ala Asn Asn Lys Arg Arg Pro
 325 330 335
 His Asn Asn Asn Asp Asp Asp Ser Ser Ser Ser Ser Ser Ser Ser
 340 345 350
 Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu
 355 360 365
 Glu Asp Gln Gln Arg Gly Asn Ser Glu Asn Lys Asn Asn Asn Gln His
 370 375 380
 Gly His Arg Gln Ala Arg Ala Ala Asn Gln Arg Gly Gln Gly Asn Gln
 385 390 395 400
 Asp Ser Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
 405 410 415
 Ser Ser Asp Ser Ser Ser Ser Ser Ser Ser Glu Ser Asp Ser Leu Ser
 420 425 430
 Ser Ser Glu Glu Tyr Trp Gln Ser Arg Pro Thr Leu Thr Asp Ala Pro
 435 440 445
 Glu Ala Pro Met Leu Pro Leu Phe Ile Gly Tyr Lys Gly Ser Ala Ala
 450 455 460
 Gln Gln Ser Ser Gln Val Asn Pro Val Ser Val Ala Lys Lys Leu Ala
 465 470 475 480

Ser Gln Ile Gly Glu Glu Leu Gln Lys Pro Ser Asn Ile Pro Lys Gln
 485 490 495
 Asn Thr Leu Glu Lys Phe Ser His Leu Ala Ala Leu Leu Arg Thr Met
 500 505 510
 Ser Ala Lys Gln Ile Glu Gln Ala Ala His Asp Met Tyr Ala Pro Ala
 515 520 525
 Lys Glu Asn Ala Ser Lys Ser Glu Ser Ala Lys Asn Ala Ala Trp Lys
 530 535 540
 Ala Phe Arg Asp Ala Val Ala Gln Ala Gly Thr Gly Pro Ala Phe Ser
 545 550 555 560
 Val Ile Lys Asn Trp Ile Gln Thr Asn Lys Ile Arg Asn Asn Gln Ala
 565 570 575
 Ala Asp Leu Ile Ala Val Leu Pro Ser Thr Thr Arg Tyr Pro Thr Ala
 580 585 590
 Glu Tyr Met Asp Ala Phe Phe Glu Leu Ala Thr Ser Pro Glu Val Thr
 595 600 605
 Lys Gln Ala Pro Leu Asn Asn Thr Ala Ile Leu Ala Phe Ala Asp Leu
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 Val Arg Glu Ser Gln Val Asn Asn Ala Ser Ala His Gly Arg Tyr Pro
 625 630 635 640
 Val His Ser Phe Gly Arg Leu Ser Pro Lys Asn Asn Pro Ala Val Gln
 645 650 655
 Gly Gln Trp Ile Pro Tyr Ile Ala Lys Gln Leu Lys Ser Ala Ile Arg
 660 665 670
 Ala Ala Asp Ser Gln Lys Ile Gln Val Tyr Ile Arg Ala Leu Gly Asn
 675 680 685
 Val Gly His Pro Lys Met Leu Ser Val Phe Glu Pro Tyr Leu Glu Gly
 690 695 700
 Gln Glu Asp Ser Ser Asp Phe Gln Arg Leu Ser Met Val Leu Ser Met
 705 710 715 720
 Gly Asn Leu Ala Arg Leu Tyr Pro Lys Gln Ala Arg Ala Val Leu Tyr
 725 730 735
 Lys Ile Tyr Gln Asn Thr Gly Glu Ala Tyr Gln Val Arg Thr Ala Ala
 740 745 750
 Val Phe Gln Leu Met Arg Thr Asn Pro Pro Pro Ser Met Leu Gln Arg
 755 760 765

Met Ala Glu Phe Thr Asn Gln Asp Thr Ser Lys Gln Val Asn Ala Ala
770 775 780

Val Lys Ser Ile Ile Glu Thr Ala Ala Lys Leu Asp Asp Ala Glu Leu
785 790 795 800

Ala His Asn Ala Arg Ala Ala Arg Asp Leu Leu Ser Thr Lys Asn Met
805 810 815

Gly Leu Gln Tyr Ser Arg Gly Trp Leu His Asp Tyr Thr Ser Glu Ala
820 825 830

Met Ser Ser Gly Tyr Gln Leu Asn Ser Tyr Trp Ile Gly Ser Glu Asp
835 840 845

Ala Ile Ala Pro Gln Ala Val Phe Ala Thr Ala Ala Phe Asn Lys Gly
850 855 860

Gly Phe Gln Ser Pro Ala Ser Ile Tyr Gly Ala Met Val Ser Ser Val
865 870 875 880

Asp Asp Leu Leu Asp Val Leu Tyr Asp Gln Phe Glu Asp Asn Asp Glu
885 890 895

Ala Asn Gln Lys Lys Asn Ser Lys Ser Ser Lys Phe Ser Pro Glu Asn
900 905 910

Ile Leu Asn Ala Leu Asn Ile Gln Ser Asn Asp Ala Glu Gln Leu Glu
915 920 925

Gly Ser Phe Leu Phe Pro Ala Leu Gln Gly Asn Arg Phe Tyr Ala Phe
930 935 940

Asp Asn Asn Thr Ile Glu Gln Leu Pro Lys Val Val Lys Gln Ala Ala
945 950 955 960

Ala Ala Leu Lys His Gly Gln Ser Phe Asn Tyr Thr Lys Leu Tyr Ser
965 970 975

Asn Glu Glu Leu Thr Val Ser Phe Pro Thr Ala Met Gly Leu Pro Phe
980 985 990

Val Tyr Thr Met Arg Thr Pro Ser Leu Val Gln Val Gly Gly Glu Ile
995 1000 1005

Gln Ala Arg Thr Tyr Pro Glu Gln Tyr Ser Gly Ser Asn Glu Glu
1010 1015 1020

Ile Ser Ile Pro Glu Ala Val Asn Ala Ser Leu Asp Ile His Ala
1025 1030 1035

Val Tyr 1040	Ser Ser Lys Val	Ile 1045	Ala Arg Ile Gly Phe	Val Asn Pro 1050
Ala Asn 1055	His Gln His His	Met 1060	Ala Gly Tyr Asp Lys	Asn Phe Gln 1065
Val Asn 1070	Leu Pro Leu Ser	Ala 1075	Glu Met Asp Ile Asp	Leu Glu Asn 1080
Ser His 1085	Val Arg Val Lys	Leu 1090	Glu Pro Ile Gln Gln	Asn Lys Glu 1095
Tyr Asn 1100	Leu Phe His Tyr	Ser 1105	Ser Trp Pro Tyr Thr	Ala Gln Lys 1110
Asp Ile 1115	Leu Ser Glu Lys	Pro 1120	Val Ser Gln Gln Lys	Gly Tyr Ala 1125
Leu Ile 1130	Ser Glu Arg Gly	Ser 1135	Glu Gln Asn Glu Trp	Ala Phe Gly 1140
Gln Lys 1145	Ser Thr Gly Leu	Ala 1150	Leu Arg Phe Thr Ser	Glu Gly Glu 1155
Gln Thr 1160	Glu His Gln Leu	Arg 1165	Asn Trp Ala Trp Glu	Met Leu Gln 1170
Ser Glu 1175	Asp Pro Leu Ala	Ile 1180	Ala Phe Ser Leu Asp	Asp Glu Ile 1185
Gln His 1190	Ser Asn Tyr Asn	Leu 1195	Trp Leu Asp Gly Gln	His Ser Ser 1200
Asn Glu 1205	Ala Val Val Leu	Thr 1210	Ala Ser Tyr Ala Asn	Tyr Thr Lys 1215
Gly Met 1220	Gly Gly Asp Ser	Asp 1225	Ser Gln Ser Gly Tyr	Gln His Pro 1230
Ala Gly 1235	Arg Lys Asn Ser	Gly 1240	Gly Glu Asp Asn Gln	Ser Ser Ser 1245
Thr Phe 1250	Val Pro Ala Phe	Gln 1255	Pro Ser Ser Gln Lys	Pro Asp Ser 1260
Glu Ser 1265	Arg Gln Gln Glu	Leu 1270	Leu Gln Lys Ala Ala	Ser Gly Ile 1275
Lys Asp 1280	Ala Tyr Ser Gln	Ser 1285	Ile Asp Phe Gly Ala	Val Phe Gln 1290
Gly Lys 1295	Asn Lys Ala Glu	Tyr 1300	Ala Ala Thr Phe Ala	Met Ala Asn 1305

Ser Pro Val Asp Pro Lys Ser Arg Val Val Phe Tyr Tyr Gly Ser
 1310 1315 1320
 Asn Pro Ala Gln Gln Lys Asn Tyr Gln Ile Cys Leu Ser Ala Gln
 1325 1330 1335
 Ser Ser Arg Pro Lys Val Pro Val Met Asp Phe Ile Lys Ala Leu
 1340 1345 1350
 Lys Ala Asp Pro Thr Thr Lys Phe Ala Ala Asp Leu Lys Phe Gly
 1355 1360 1365
 Glu Gln Cys Gln Ser Gly Ala Gln Val Gln Ile Gln Gly Gln Leu
 1370 1375 1380
 Glu Gln Thr Glu Gly Arg Arg Glu Tyr Leu Arg Arg Thr Pro Thr
 1385 1390 1395
 Gly Gln Gln Cys Ala Gln Gln Met Gln Glu Gly Asn Lys Ile Leu
 1400 1405 1410
 Pro Ala Cys Arg Asn Val Thr Ala Arg Ala Asn Phe Leu Asn Glu
 1415 1420 1425
 Gly Ser Leu Thr Val Lys Phe Ser His Val Thr Asp Tyr Met Lys
 1430 1435 1440
 Asn Val Ser Ala Arg Ala Tyr Gly Leu Ala Arg Tyr Phe Gly Tyr
 1445 1450 1455
 His Ser Ala Tyr Glu Asn Ile Val Asn Pro Gly Asn Gln Lys Asn
 1460 1465 1470
 Gly Gln Ile Asp Phe Gly Tyr Glu Ile Ser Pro Asp Phe Gln Arg
 1475 1480 1485
 Leu Asn Val Ser Met Ser Ala Pro Gly Leu Asp Ala Asn Ile Thr
 1490 1495 1500
 Asp Leu Glu Ile His Pro Trp Ala Arg Ser Ile Val Ala Val Asp
 1505 1510 1515
 Pro Val Gln Ser Gly Ala Arg Arg Phe Ala Arg Glu Ala Leu Ala
 1520 1525 1530
 Gly Gln Tyr Asn Pro Thr Cys Val Ile Asp Asn Asn Gln Ala Ser
 1535 1540 1545
 Thr Phe Asp Asn Lys Thr Tyr Pro Ile Glu Leu Gly Asn Cys Trp
 1550 1555 1560

His Val 1565	Val Met Thr Thr 1570	Ile Pro Asp Asp Glu Gln 1575	Asn Gly Asp
Asp Glu 1580	Ile Pro Glu Asp Met 1585	Arg Val Ser Val Val 1590	Cys Arg Asp
Ile Asn 1595	Glu His Gln Arg Glu 1600	Cys Arg Leu Val Leu 1605	Gly Glu Ala
Glu Ile 1610	Glu Met Tyr Pro Asn 1615	Asn Asp Gln Ala Ala 1620	Ile Lys Val
Asn Gly 1625	Arg Ala Val Gln Leu 1630	Ser Gln Glu Glu Thr 1635	Tyr Arg Tyr
Thr Ser 1640	Gln Asn Gly Glu Ile 1645	Gln Phe Glu Ala Tyr 1650	Leu Lys Pro
Ser Gly 1655	Val Val Tyr Ile His 1660	Ser Glu Glu Tyr Gly 1665	Val Arg Ala
Leu Tyr 1670	Asp Gly Glu Arg Ile 1675	Lys Leu Ile Leu Asn 1680	Asn Glu Tyr
Arg Asp 1685	Gln Ile Arg Gly Leu 1690	Cys Gly Thr Phe Asn 1695	Gly Glu Pro
Ala Thr 1700	Asp Phe Thr Ala Pro 1705	Gln Asn Cys Ile Leu 1710	Lys Asn Pro
Glu His 1715	Phe Ala Ala Ser Tyr 1720	Ala Leu Thr Lys Asp 1725	Gln Cys Glu
Gly Pro 1730	Ala Lys Glu Asn Ala 1735	Arg Arg Ala Gln Gln 1740	Ala His Cys
Tyr Arg 1745	Glu Ala Val Leu Phe 1750	Gly Asn Val Val Ser 1755	Asp Gln Asp
Ala Gly 1760	Arg Ser Lys Asn Lys 1765	Asp Ser Lys Trp Glu 1770	Asn Asn Lys
Ser Arg 1775	Lys Ser Gly Ser Gly 1780	Gly Lys Lys Ser Gly 1785	Ser Cys Thr
Lys Phe 1790	Ala Thr Ala Thr Ile 1795	Glu Glu Asn Gly Lys 1800	Thr Cys Phe
Ser Leu 1805	Arg Pro Val Ala Thr 1810	Cys Ala Ala Gly Cys 1815	Lys Ala Thr
Arg Lys 1820	Gln Glu Thr Thr Val 1825	Lys Met His Cys Val 1830	Gln Ser Ser

Ser Ser Ser Gln Gln Leu Val His Arg Ile Lys Gln Gly Ala Asn
1835 1840 1845

Pro Asp Phe Ser Gln Lys Ser His Asp Lys Ser Ser Arg Ile Glu
1850 1855 1860

Val Pro Glu Ser Cys Val Ala Gln Gln
1865 1870

<210> 6
<211> 1807
<212> PRT
<213> *Pimpla nipponica*

<400> 6

Met Trp Cys Pro Leu Phe Leu Val Leu Leu Ala Gly Ala Ala Thr Ala
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Glu His Leu Gln Ala Trp Lys Thr Asp Thr Glu Tyr Gln Tyr Ala Val
20 25 30

Arg Gly Arg Thr Leu Ser Ala Leu His Asp Val Ala Asp Gln Tyr Ser
35 40 45

Gly Ile Ile Met Arg Ala Leu Leu Thr Ile Gln Pro Lys Ser Asp Gly
50 55 60

Thr Leu Glu Ala Lys Val Thr Lys Ala Arg Tyr Ala Gln Ile His Thr
65 70 75 80

Lys Leu Pro Gly Gly Trp Asn Ser Glu Ile Pro Asp His Lys Leu Glu
85 90 95

Met Lys Gln Phe Pro Met Ser Glu Lys Val Phe Glu Ile Lys Met Lys
100 105 110

His Gly Val Val Arg Asp Leu Ile Val Asp Lys Asp Val Pro Thr Trp
115 120 125

Glu Val Asn Val Leu Lys Ser Ile Val Ser Gln Leu Gln Val Asp Thr
130 135 140

Gln Gly Glu Asn Leu Met Ala Ser Lys Tyr Asn Gln Glu Pro Glu Asp
145 150 155 160

Glu Gly Val Thr Ala Met Phe Lys Thr Met Glu Asp Thr Val Gly Gly
165 170 175

Arg Cys Glu Val Leu Tyr Asp Ile Asn Pro Leu Pro Glu Phe Val Leu
180 185 190

Gln Lys Arg Pro Glu Leu Val Pro Met Pro Asp Ile Arg Gly Asp Gly

195	200	205
Glu Ile Ile Asp Ile Val 210	Lys Thr Lys Asn Tyr 215	Ser Asn Cys Glu Gln 220
Arg Ser Gly Tyr His Phe 225	Gly Ile Pro Gly Thr 230 235	Asn Lys Trp Glu Pro 240
Ser Ser Gly Ala Ser 245	Gly Asn Phe Leu Ser 250	Arg Ser Ser Val Ser Arg 255
Val Ile Val Thr Gly 260	Asn Leu Lys Ser Phe Thr 265	Ile Gln Ser Ser Val 270
Ser Thr Asn Lys Val Ile 275	Leu Ser Pro Asn Phe His 280 285	Glu Asn Arg Lys
Gly Met Val Ser Ser Arg 290	Val Asn Val Thr Leu 295 300	Val Lys Ile Gly Ala
Pro Ser Thr Gly Asp Trp 305 310	Ser Thr Pro Ala Asn 315	Pro Glu Ser Thr Gly 320
Asn Leu Val Tyr Asn Tyr 325	Asn Asn Pro Phe Ala 330	Gly Val Gly Glu Asp 335
Arg Arg Ala Ser Arg Pro 340	Gln Asp Asn Arg Asn 345	Ser Glu Glu Lys Val 350
Arg Ser Leu Tyr Asn Leu 355	Tyr Arg Arg Asn Arg 360	Ile Asn Asp Asn Asp 365
Asp Asp Ser Ser Ala Ser 370 375	Asp Ser Ser Lys Ser 380	Ala Lys Ser Leu Glu
Ser Asn Glu Glu Gln Leu 385 390	Tyr Trp Gln Pro Lys 395	Pro Thr Leu Asn Glu 400
Ala Pro Ala Met Ala Met 405	Leu Pro Phe Phe Ile 410	Gly Asn His Gly Lys 415
Ser Ile His Lys Thr Asp 420	Glu Ile Glu Pro Ile Thr 425	Met Ala Lys Thr 430
Leu Ala Ser Gln Ile Gly 435	Ser Asp Phe Gln Asp 440	Pro Asn Ser Ile Thr 445
Asp Glu Gln Thr Leu Glu 450 455	Lys Phe Thr Leu Leu 460	Val Arg Ile Ile Arg
Thr Met Ser Thr Gln Gln 465 470	Ile Ala Glu Ala Glu 475	Arg Asp Leu Tyr Gln 480

Ser Asn Asn Glu Ile Asp Pro His Asp Glu Ser Gln Ser Val Arg Arg
 485 490 495
 Gly Thr Trp Ala Ala Phe Arg Asp Ala Val Ala Gln Ala Gly Thr Ala
 500 505 510
 Pro Ala Leu Val Thr Ile Thr Leu Trp Ile Lys Gln Lys Lys Ile Arg
 515 520 525
 Gly Val Glu Ala Ala Ser Val Val Gly Val Leu Ala Lys Thr Ala Arg
 530 535 540
 Thr Pro Thr Arg Glu Tyr Ile Asp Val Phe Phe Glu Leu Ala Thr Met
 545 550 555 560
 Pro Glu Thr Ile His Glu Pro Phe Leu Asn Thr Thr Ala Leu Phe Thr
 565 570 575
 Phe Ser Glu Leu Val Arg Tyr Ser Gln Met Asp Asn Pro Ser Ser His
 580 585 590
 Thr Arg Tyr Pro Val His Thr Phe Gly Arg Phe Ser Asp Lys Ile Asn
 595 600 605
 Pro Glu Val Phe Arg Met Tyr Val Pro Tyr Leu Ala Glu Lys Leu Lys
 610 615 620
 Thr Ser Ile Glu Lys Asn Glu Asn Ala Lys Ala His Thr Tyr Ile Val
 625 630 635 640
 Ser Leu Gly Asn Ile Ala His Pro Lys Ile Leu Ala Val Phe Glu Pro
 645 650 655
 Tyr Leu Glu Gly Lys Met Pro Ala Ser Thr Phe Gln Arg Leu Leu Met
 660 665 670
 Val Ile Ser Leu Asn Lys Leu Ala Thr Leu Lys Pro Lys Leu Ala Arg
 675 680 685
 Gly Val Phe Tyr Arg Ile Tyr Lys Asn Thr Gly Glu Ala His Gln Leu
 690 695 700
 Arg Cys Ala Ala Val Thr Ala Leu Met Ser Thr Asn Pro Pro Ala Ser
 705 710 715 720
 Met Leu Gln Arg Met Ala Glu Phe Thr Asn Glu Asp His Ser Lys His
 725 730 735
 Val Asn Ala Ala Val Lys Ser Ala Ile Glu Ser Ala Ser Glu Leu Glu
 740 745 750
 Thr Pro Gln Trp Gln Glu Leu Ala Glu Asn Ala Arg Asn Ala Lys Pro

755 760 765
 Leu Leu Asn Lys Glu Ser Tyr Gly Phe Glu Tyr Ser Lys Leu Tyr Leu
 770 775 780
 Thr Asp Phe Ile Glu Arg Glu Met Asn Val Ala Tyr Gln Ala Gln Ala
 785 790 795 800
 Ser Phe Ile Ser Ser Asp Asp Ser Tyr Val Pro Glu Ala Leu Phe Val
 805 810 815
 Lys Ala Arg Ala Ile Phe Gly Gly Phe Thr Phe Pro Arg Thr Ser Ala
 820 825 830
 Gly Ala Met Val Ser Ser Ala Lys Asp Leu Leu Ser Ala Phe Glu Asp
 835 840 845
 Ala Phe Lys Gly Glu Lys Thr Ser His Lys His Ser His Val Glu Phe
 850 855 860
 Ser Pro Glu Asn Val Ala Lys Leu Leu Lys Ile Lys Ser Glu Pro Asn
 865 870 875 880
 Glu Asp Val Glu Gly Ala Phe Met Leu Gln Ser Ala Tyr Asn Asn Lys
 885 890 895
 Phe Met Ser Leu Asp Lys Asn Thr Leu Lys Asn Leu Pro Glu Leu Ser
 900 905 910
 Ser Lys Ala Leu Lys Ala Leu Lys Asp Gly His His Phe Asn Thr Ala
 915 920 925
 Arg Ile Glu Ser Tyr Glu Met Thr Met Ser Phe Pro Met Glu Ser Gly
 930 935 940
 Phe Pro Phe Val Tyr Thr Met Lys Val Pro Ser Met Leu Lys Leu Ala
 945 950 955 960
 Gly Ser Val Lys Gly Asp Ser Asn Glu Asp Ser Leu Asp Gly His Val
 965 970 975
 His Leu Arg Ala Val Tyr Ser Val Gln Phe Gln Ser Lys Leu Gly Phe
 980 985 990
 Val Thr Pro Phe Glu His Gln His Tyr Met Ala Gly Ile Asn Lys Asn
 995 1000 1005
 Tyr Gln Ala Tyr Val Pro Leu Arg Val Asn Val Asn Tyr Glu Asp
 1010 1015 1020
 Ser Asp Lys Arg Val Thr Leu Lys Ile Gln Pro Ile Glu Gln Asn
 1025 1030 1035

Glu Lys Phe Lys Leu Trp His His Ser Val Val Pro Phe Thr Ser
 1040 1045 1050
 Arg His Asp Ile Leu Lys Met Ser Pro Val Leu Lys Asp Lys Glu
 1055 1060 1065
 Thr Gln Lys Ile Ile Thr Glu Glu Val Ser Lys Asn Glu Tyr Asn
 1070 1075 1080
 Phe Gly Ser Asp Lys His Gly Val Lys Phe Thr Val Leu Ala Glu
 1085 1090 1095
 Ala Asp Asn Asp Asn Ser Pro Leu Asn Phe Glu Asp Ala Lys Trp
 1100 1105 1110
 Glu Arg Asn Pro Leu Thr Gln Leu Phe His Leu Phe Val Glu Gln
 1115 1120 1125
 Pro Val Tyr His Lys Val Asp Ile Phe Met Gln Pro Ser Lys Ser
 1130 1135 1140
 Ser Glu Gln Ser Ile Ile Leu Ser Thr Ala Phe Glu Thr Leu Gln
 1145 1150 1155
 Asp Asp Thr Thr Lys Tyr Asp Glu Asp Arg Ser Lys His Ile Lys
 1160 1165 1170
 Ala Glu Ala Pro Lys Val Glu Asn Lys Lys Leu Asn Asp Pro Gln
 1175 1180 1185
 Arg Arg Arg Lys Leu Leu Lys Glu Ala Ala Lys Gly Ile Ala Ala
 1190 1195 1200
 Ala Asp Ala Phe Ala Val Asp Ile Gly Leu Glu Tyr Pro Gly Gln
 1205 1210 1215
 Ala Pro Val Gln Ala Phe Ala Thr Leu Ala Phe Ala Ser Ser Glu
 1220 1225 1230
 Val Asp Glu Lys Ser Arg Gly Leu Val Tyr Trp Arg Leu Thr Asp
 1235 1240 1245
 Ala Gly Asn Asp Phe Glu Phe Glu Ser Cys Thr Ser Leu Glu Ala
 1250 1255 1260
 Arg Ser Pro Arg Thr Ser Asp Phe Gly Lys Asp Met Leu Asp Gln
 1265 1270 1275
 Pro Glu Phe Arg Ser Arg Lys Phe Asp Ile Asp Leu Arg Tyr Gly
 1280 1285 1290
 Gln Thr Cys Glu Lys Gly Tyr Lys Val Glu Ile Gln Gly Ser Gln

1295		1300		1305
Glu Gln Thr Glu Lys Tyr Arg Asp Thr Ile Lys Arg Leu Pro Thr				
1310		1315		1320
Ala Ile Glu Cys Ile Arg Ala Ala Lys Lys Gly Met Lys Ser Leu				
1325		1330		1335
Pro Ala Cys His Asp Val Ser Val Lys Met Thr Met Leu Asp Lys				
1340		1345		1350
Thr Arg Ile Thr Ile Lys Tyr Asp Lys Asp Ser Arg Glu Met Tyr				
1355		1360		1365
Gln Leu Phe Asp Asp Tyr Leu Asp Ser Met Ser Asp Ala Asp Asp				
1370		1375		1380
Asp Leu Lys Ser Ser Lys Lys Arg Leu Asn Ala Val Lys Asp Asp				
1385		1390		1395
Asp Lys Ala Tyr Asp Asp Thr Val Lys Ile Ala Val Asp Leu Ser				
1400		1405		1410
Pro Asn Asp Asn Asn Gly Arg Phe Ser Tyr Glu Ser Asp Phe Val				
1415		1420		1425
Lys Leu Glu Ala Arg Asp Val Pro Ile Asn Gly Ile Gly Pro Leu				
1430		1435		1440
Val Asn Val His Pro Asp Leu Glu Thr Ala Glu Arg Leu Asp Met				
1445		1450		1455
Asp Met Ser Asp Glu Pro Val Arg Gln Arg Ile Cys Val Leu Asp				
1460		1465		1470
Ser His Ser Ala Thr Thr Phe Asp Glu Ser Thr Tyr Pro Ile Asn				
1475		1480		1485
Leu Gly Lys Cys Trp His Val Val Met Thr Thr Phe Pro Lys Thr				
1490		1495		1500
Asn Lys Asn Ser Gly Ser Ala Glu Pro Ile Asp Glu Asp Met Ala				
1505		1510		1515
Leu Ser Ile Leu Val Arg Asp Ala Gly Asp Lys Lys Lys Asp Ile				
1520		1525		1530
Lys Val Thr Leu Gly Asp Lys Glu Leu Gln Phe Ser His Ala Asp				
1535		1540		1545
Ser Lys Asn Lys Val Thr Leu Asp Gly Lys Lys Val Asp Leu Ser				
1550		1555		1560

Glu Lys Arg Ser Tyr Arg His Lys Asn Gly Lys Asp Ile Asp Phe
 1565 1570 1575
 Glu Val Leu Gln Arg Pro Asp Gly Thr Leu Gly Leu Val Ser Ser
 1580 1585 1590
 Lys Tyr Asp Ile Asp Ala Trp Tyr Asp Gly Gln Arg Val Gln Ile
 1595 1600 1605
 Lys Ala Ser Gly Lys Tyr Arg Ser Asp Ile Arg Gly Leu Cys Gly
 1610 1615 1620
 Asn Phe Asp Gly Glu Pro Asp Asn Asp Phe Thr Ser Pro Lys Asp
 1625 1630 1635
 Cys Val Leu Leu Lys Pro Glu Glu Phe Ala Ala Ser Tyr Ala Leu
 1640 1645 1650
 Thr Thr Lys Asp Cys His Gly Ser Ala Leu Glu His Ala Arg Lys
 1655 1660 1665
 Ala Ser Gln Ala Val Cys Ser Gln Lys Ser Pro Arg Pro Gly Asn
 1670 1675 1680
 Val Val Ser Asp Arg Asp Ala Gly Arg Lys Tyr Ser Glu Asn Ser
 1685 1690 1695
 Asn Trp Gly Tyr His Ser Arg Gln Asn Ser Asp Asp Glu Gln Gly
 1700 1705 1710
 Lys Asn Asp Ser Ser Asp His Lys Arg Cys Asn Thr Leu Arg Thr
 1715 1720 1725
 Lys Val Ile Glu Glu Glu Asp Gln Ile Cys Phe Ser Leu Arg Pro
 1730 1735 1740
 Leu Pro Thr Cys Ala Glu Gly Cys Thr Ala Asn Arg Thr Lys Pro
 1745 1750 1755
 Lys Val Met Pro Met His Cys Met Pro Lys Asn Ile Ala Ala Glu
 1760 1765 1770
 Arg Met Ala Asp Arg Ile Lys Gln Gly Ala Asn Pro Asp Phe Ser
 1775 1780 1785
 Gln Lys Ser Tyr Thr Lys Lys Asn Gly Phe Asp Ile Pro Val Gly
 1790 1795 1800
 Cys His Ala Ala
 1805

<210> 7

<211> 1876

<212> PRT

<213> Riptortus clavatus

<400> 7

Met Trp Ser Pro Val Ile Ile Cys Leu Leu Val Gly Leu Ala Ser Ala
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Asp Asn Pro Trp Lys Ala Gly Thr Lys Tyr Thr Tyr Gln Ile Gln Gly
20 25 30

Arg Thr Leu Thr Gly Leu His Gln Val Ala Asp Gln Tyr Thr Gly Val
35 40 45

Met Ile Gln Gly Gln Leu Thr Val Arg Ala Glu Ser Asp Asn Lys Ala
50 55 60

Thr Ala Val Ile Glu Asn Ala Lys Tyr Ala Asp Leu Gln Ala Asn Leu
65 70 75 80

Ser Arg Gly Trp Asp Ser Glu Ile Gln Glu Asn Glu Leu Gln Tyr Asn
85 90 95

Glu Leu Pro Ile Ser Lys Asp Pro Phe Glu Ile His Phe Arg Asn Gly
100 105 110

Val Ile Glu Lys Met Val Val Asn Lys Asp Ile Pro Gln Trp Gln Leu
115 120 125

Asn Phe Tyr Lys Ser Ile Ala Ser Gln Phe Gln Val Asp Thr Gln Gly
130 135 140

Lys Asn Leu Lys Asp Ser Lys Ile Asn Leu Val Pro Ser Gly Gln Ser
145 150 155 160

Gly Glu Pro Met Gly Val Tyr Lys Thr Met Glu Asp Ser Val Asn Gly
165 170 175

Ile Tyr Glu Thr Leu Tyr Asp Ile Ser Val Leu Pro Glu Tyr Ile Leu
180 185 190

Gln Ala Arg Pro Glu Leu Ala Pro Leu Pro His Leu Lys Gly Asp Gly
195 200 205

Glu Phe Ile Glu Val Val Lys Thr Arg Asn Phe Ser Asn Ser Asn Gln
210 215 220

His Val Ile Tyr Arg Phe Gly Ser Ser Gly His Glu Gly Trp Glu Ala
225 230 235 240

Gly Thr Asn Gln Met Gly Asp Phe Leu Ser Arg Ser Ser Gln Ser Arg
245 250 255

Val Ile Leu Ser Gly Lys Leu Asn Arg Tyr Thr Ile Gln Ser Ala Val
 260 265 270

Thr Thr Glu Lys Val Leu Val Ala Pro His Val Tyr Asn Asn Gln Lys
 275 280 285

Gly Ile Val Val Ser Ser Met Asn Ile Thr Leu Gln Gln Ala Thr Gly
 290 295 300

Ser Gln Gly Ser Pro Gln Ser Val Ser Asn Pro Arg Glu Val Lys Ser
 305 310 315 320

Leu Val Tyr Glu Tyr Glu Ser Gln Gly Asn Ser Glu Asn Leu Gln Ser
 325 330 335

Ser Gln Gln Ser Ser Gln Gln Ser Ser Ser Glu Glu Ser Ser Ser Ser
 340 345 350

Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Glu Asn Met Asn Ser Met
 355 360 365

Lys Thr Asn Gln Gln Met Lys Glu Asp Arg Ala Lys Arg Ile Arg Arg
 370 375 380

Ser Leu Glu Glu Gln Gln Ser Ser Ile Asn Arg Lys Gly Lys Asn Ala
 385 390 395 400

Arg Ser Gln Ala Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
 405 410 415

Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Ser Ser Ser Ser Val Ser
 420 425 430

Ser Ser Glu Glu Asn Leu Pro Arg Gln Pro Arg Ser Ile Glu Gln Ala
 435 440 445

Pro Gly Ser Glu Leu Gln Ala Gly Tyr Tyr Met Gly Ser Met Gly Gln
 450 455 460

Gln Lys Gln Asn Val Pro Glu Gln Ile Lys Ser Leu Ala Lys Lys Val
 465 470 475 480

Gly Gln Trp Val Gln Asn Pro Gly Gln Ile Pro Glu Glu Asn Arg Leu
 485 490 495

Pro Leu Phe Ser Met Leu Thr Arg Met Val Gln Asn Ala Asn Ser Gln
 500 505 510

Gln Leu Glu Gln Val Thr Gln Ser Leu Tyr His Gln Gln Ser Lys Asn
 515 520 525

Gln Gln Gln Ser Asp Ala Glu Arg Gln Gln Tyr Gln Ser Trp Ala Ala
 530 535 540

Phe Arg Asp Ala Val Ala Gln Ala Gly Thr Gly Pro Ala Leu Val Thr
 545 550 555 560
 Ile Lys Gln Trp Ile Gln Ser Lys Lys Val Gln Gly Glu Glu Ala Ala
 565 570 575
 Gln Leu Leu Ala Val Leu Pro Tyr Thr Ala Arg Tyr Pro Asn Thr Glu
 580 585 590
 Tyr Met Asn Tyr Phe Phe Asp Met Val Thr Ser Glu Glu Ile Gln Arg
 595 600 605
 Gln Arg Ser Leu Asn Thr Thr Ala Leu Phe Ala Phe Thr Glu Leu Ser
 610 615 620
 Arg Lys Ser Gln Val Asp Tyr Asp Val Ala His Asn Arg Tyr Pro Val
 625 630 635 640
 His Leu His Ala Lys Asn Ser Gln Glu His Arg Gln Ala Val Pro Gln
 645 650 655
 Lys Tyr Ile Pro Trp Leu Gln Glu Arg Leu Glu Arg Ala Val Ser Arg
 660 665 670
 Gly Asp Ser Ile Lys Ala Gln Val Tyr Ile Arg Ala Leu Gly Asn Thr
 675 680 685
 Ala His Pro Lys Ile Leu Ala Val Phe Glu Pro Tyr Leu Glu Gly Lys
 690 695 700
 Ser Gln Ile Ser Glu Phe Gln Arg Leu Ser Ile Ile Ala Ser Leu Asp
 705 710 715 720
 Glu Met Thr Arg Thr His Pro Asn Leu Ala Arg Asp Val Leu Tyr Arg
 725 730 735
 Ile Tyr Gln Asn Thr Ala Glu Lys Ser Glu Ile Arg Ala Ala Ala Val
 740 745 750
 Arg Gln Leu Met Arg Thr Asn Pro Pro Ala Gln Met Leu Gln Arg Met
 755 760 765
 Ala Asp Phe Thr Asn Tyr Asp His Ser His Gln Val Asn Ala Ala Val
 770 775 780
 Lys Ser Ala Ile Glu Ser Ala Ala Ala Cys Thr Asp Ser Ser Val Asp
 785 790 795 800
 Gln Gln Leu Val Asn Asn Ala Arg Ala Ala Ala Asn Tyr Leu Thr Pro
 805 810 815

Lys Asn Tyr Gly Val Gln Tyr Ser Lys Thr His Leu Lys Ser His Asn
 820 825 830
 Val Glu Gly Gln Asn Leu Gln Tyr Gln Gln His Cys Ser Ser Ile Gln
 835 840 845
 Ser Gln Asp Ser Ser Leu Pro Ser Ser Leu Met Tyr Glu Val Gln Gln
 850 855 860
 Ser Val Gly Gly Tyr His Arg Asp Pro His Lys Phe Tyr Phe Met Thr
 865 870 875 880
 Ser Ser Ser Glu Gln Ala Ile Asn Leu Met Arg Gln Thr Ile Ala Gln
 885 890 895
 Gln Ser Gly Ser Tyr Arg Lys Arg Trp Ser Arg Asn Gln His Gly Ser
 900 905 910
 Glu Gln Ser Tyr Glu Asn Ile Leu Arg Ser Ile His Leu His Thr Asp
 915 920 925
 Glu Pro Val Gln Val Glu Gly Asn Ile Leu Val Ser Gly Leu Gly Gly
 930 935 940
 Lys Glu Phe Phe Thr Phe Asp Asn His Thr Ile Glu Gln Ile Pro Gln
 945 950 955 960
 Phe Phe Ser Asn Ile Asn Glu Lys Leu Gln Asp Lys Ser Tyr Val Gln
 965 970 975
 His Thr Lys Tyr Tyr Asn Gln Tyr Ser Leu Glu Ile Gly Phe Pro Ser
 980 985 990
 Ala Met Gly Leu Pro Phe Val Tyr His Leu Asp Val Pro Thr Leu Ala
 995 1000 1005
 Ser Val Ser Gly Lys Trp Ser Gly Gln Val Glu Leu Gln Gln His
 1010 1015 1020
 Gln Lys Glu Gln Asn Glu Lys Tyr Ser Ile Pro Val Lys Gly Gln
 1025 1030 1035
 Val His Gly Asp Phe Glu Phe Val Tyr Ser Ala Gln Lys Ser Gly
 1040 1045 1050
 Leu Met Gly Phe Val Ala Pro Phe Ser Gln Asn Arg Tyr Ile Ala
 1055 1060 1065
 Gly Leu Glu Lys Asn Ile His Ala Tyr Val Pro Val Gln Ala Lys
 1070 1075 1080
 Val Glu Tyr Asn Pro Glu Glu Asn Lys Val Gln Ala Ser Leu Gln
 1085 1090 1095

Pro Leu Ala Gln Gln Lys Gln Glu Glu Gln Gln Val Phe Gln Tyr
 1100 1105 1110
 Ser Ser Asn Ala Tyr Thr Thr Tyr Gln Lys Ser Ser Asp Leu Thr
 1115 1120 1125
 Pro Tyr Leu Gln Gly Glu Asn Thr Gln Ala Val Tyr Ala Lys Ala
 1130 1135 1140
 Pro Arg Trp Tyr His Asn Thr Tyr Gly Gln Ala Ala Thr Gly Tyr
 1145 1150 1155
 Ala Phe Asp Leu Ser Tyr Lys Thr Glu His Asn Ser His Ser Trp
 1160 1165 1170
 Ala Ser Ile Tyr Asn Ala Leu Gln Cys His Asp Tyr Ile Ser Ala
 1175 1180 1185
 Phe Leu Tyr Tyr Asp Thr Pro Gly Thr Ile Gln Asn Asp Tyr Ile
 1190 1195 1200
 Ser Ile Lys Tyr Asn Pro Gln Lys Ser Ser Pro Gln Glu Val Asn
 1205 1210 1215
 Val Ala Leu Ser Phe Ile Ser Asn Glu Tyr Gly Asn Lys Gly Ala
 1220 1225 1230
 Arg Met Thr Ser Lys Phe Lys Lys Ala Asn Ile Arg Asp Arg Ser
 1235 1240 1245
 Ala Ser Ser Ala Arg Asp Asn Leu Ala Val Pro Ser Ser Glu Gln
 1250 1255 1260
 Gln Arg Glu Gln Glu Leu Leu Arg Asn Val Glu Ala Glu Ile Gln
 1265 1270 1275
 Asp Ala Lys Ser His Leu Leu Asp Ala Ser Val Thr Phe Gly Gly
 1280 1285 1290
 Lys Asn Asn Asn Ala Gly Tyr Ser Phe Thr Leu Ala His Ala Asn
 1295 1300 1305
 Ser Pro Val Ser Glu Lys Ser Arg Val Leu Phe Tyr Tyr Asn Ala
 1310 1315 1320
 Gln Pro Val Ser Ser Ser Glu Asn Thr Lys Pro Phe Gln Ala Ala
 1325 1330 1335
 Phe Gln Leu Asp Ile Lys Asp Pro Gln Leu Pro Ala Phe Asn Tyr
 1340 1345 1350

Gln Asp 1355	Ala Leu Asn Ala 1360	Asp Ser Thr Ser Gln Val 1365	Gln Gly Lys
Ile Asn 1370	Met Gly Glu Gln Leu 1375	Glu Ser Gln Ile Thr 1380	Phe Lys Gly
Lys Leu 1385	Glu Arg Thr Gln Glu 1390	Arg Lys Glu Tyr Leu 1395	Gln Gln His
Pro Leu 1400	Ala Arg Ala Cys Glu 1405	Ser Gln Met Gln Arg 1410	Arg Asn Tyr
Ile Gln 1415	Pro Ala Cys Leu Asn 1420	Ala Thr Leu Gln Ala 1425	Asn Phe His
Asn Arg 1430	Tyr Gln Phe Val Phe 1435	Asn Tyr Gln Asn Val 1440	Pro Ala Gly
Val Arg 1445	Arg Ala Phe His Ser 1450	Ala Tyr Ser Met Gly 1455	Arg Tyr Ala
Leu Tyr 1460	Gln Asn Asn Glu Glu 1465	Asn Ile Asn Thr Glu 1470	Gln Asn Gln
Glu Gly 1475	Gln Ile Gln Ile Gly 1480	Val Gln Phe Glu Glu 1485	Asn Leu Arg
Ser Val 1490	Asn Leu Ser Ile Ala 1495	Ala Pro Gly Leu Ser 1500	Ser Asn Phe
Ser Asn 1505	Val Arg Val Pro Gly 1510	Met Ala Val Pro Phe 1515	Val Val Tyr
His Pro 1520	Arg Tyr Asn Thr Tyr 1525	Gln Leu Leu Lys Ser 1530	Lys Leu Tyr
Gln Thr 1535	Glu Gln Pro Gln Ala 1540	Thr Ala Val Ile Asp 1545	Gly Asn Lys
Ala Thr 1550	Thr Phe Ser Asn Arg 1555	Thr Tyr Pro Ile Asp 1560	Leu Gly Asn
Cys Tyr 1565	His Val Phe Ala Met 1570	Tyr Ala Pro Gln Gly 1575	Gln Gly Glu
Asn Arg 1580	Gln His Glu Ser Ser 1585	Ile Ser Asn Ile Gln 1590	Gln Gly Tyr
Ala Val 1595	Leu Val Lys Glu Thr 1600	Asp Ser Glu His Lys 1605	Glu Val Lys
Val Ile 1610	Leu Gly Ser Asp Val 1615	Ile Glu Leu Lys Ser 1620	Lys Ser Ser

Gly Leu Ser Ile Gln Ala Asn Gly Gln Asn Ile His Ala Ser Glu
 1625 1630 1635
 Lys Gln Leu Thr Lys Trp Ser Asn Asn Asn Asn Tyr Leu Glu Ala
 1640 1645 1650
 Tyr Ala Arg Pro Asp Ala Val Val Leu Ser Leu Pro Gln Gln Gly
 1655 1660 1665
 Ile Glu Leu Thr Tyr Asp Gly Ala Arg Val Gln Leu Ser Ala Ser
 1670 1675 1680
 Ser Ser Tyr Lys Gly Asn Val Arg Gly Leu Ala Gly Thr Phe Asp
 1685 1690 1695
 Gly Gln Glu Ala Asn Asp Phe Thr Thr Pro Asn Asn Arg Val Leu
 1700 1705 1710
 Arg Asn Pro Leu Gln Phe Ala Ala Thr Tyr Ala Leu Leu Asp Ser
 1715 1720 1725
 Glu Cys Gln Gly Pro Ala Val Gln Arg Gln Gln Gln Ala Gln Gln
 1730 1735 1740
 Ser Pro Ser Tyr Glu Arg Arg Val Ile Leu Gly Asp Val Val Asn
 1745 1750 1755
 Glu Leu Glu Ala Gly Arg Gln Gln Gln Gln Asn Asn Lys Ser Lys
 1760 1765 1770
 Lys Asn Lys Ala Asn Gly Ser Glu Glu Arg Met Lys Val Gln Gly
 1775 1780 1785
 Ser Ser Cys Ser Lys Leu Met Thr Gln Ile Val Glu Glu Asn Asp
 1790 1795 1800
 Lys Ser Cys Phe Ser Thr Thr Pro Gln Pro Ala Cys Ala Ser His
 1805 1810 1815
 Cys Arg Pro Thr Gly Lys Ile Gln Lys Ile Val Asp Phe His Cys
 1820 1825 1830
 Val Gln Ala Ser Ser Ser Ser Arg Asn Trp Ala Gln Met Ile Lys
 1835 1840 1845
 Asn Gly Ala Asn Pro Asp Phe Ser Ala Lys Glu Lys His Arg Gln
 1850 1855 1860
 Ile Leu Leu Gln Leu Pro Thr Gly Cys Val Pro Lys Ala
 1865 1870 1875

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 <212> PRT
 <213> Aedes aegypti

<400> 8

Met Leu Ala Lys Leu Leu Leu Leu Ala Leu Ala Gly Leu Thr Ala Ala
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Tyr Gln Tyr Glu Asn Ser Phe Lys Gly Tyr Asn Pro Gly Tyr Lys Gly
 20 25 30

Tyr Asp Ala Gly Tyr Lys Gly Tyr Gly Tyr Asp Ala Gly Tyr Lys Tyr
 35 40 45

Asn Asn Gln Gly Tyr Ser Tyr Lys Asn Gly Phe Glu Tyr Gly Tyr Gln
 50 55 60

Asn Ala Tyr Gln Ala Ala Phe Tyr Lys His Arg Pro Asn Val Thr Glu
 65 70 75 80

Phe Glu Phe Ser Ser Trp Met Pro Asn Tyr Glu Tyr Val Tyr Asn Val
 85 90 95

Thr Ser Lys Thr Met Thr Ala Leu Ala Glu Leu Asp Asp Gln Trp Thr
 100 105 110

Gly Val Phe Thr Arg Ala Tyr Leu Val Ile Arg Pro Lys Ser Arg Asp
 115 120 125

Tyr Val Val Ala Tyr Val Lys Gln Pro Glu Tyr Ala Val Phe Asn Glu
 130 135 140

Arg Leu Pro His Gly Tyr Ala Thr Lys Phe Tyr His Asp Met Phe Lys
 145 150 155 160

Phe Gln Pro Met Pro Met Ser Ser Lys Pro Phe Gly Ile Arg Tyr His
 165 170 175

Lys Gly Ala Ile Lys Gly Leu Tyr Val Glu Lys Thr Ile Pro Asn Asn
 180 185 190

Glu Val Asn Ile Leu Lys Ala Trp Ile Ser Gln Leu Gln Val Asp Thr
 195 200 205

Arg Gly Ala Asn Leu Met His Ser Ser Lys Pro Ile His Pro Ser Lys
 210 215 220

Asn Glu Trp Asn Gly His Tyr Lys Val Met Glu Pro Leu Val Thr Gly
 225 230 235 240

Glu Cys Glu Thr His Tyr Asp Val Asn Leu Ile Pro Ala Tyr Met Ile
 245 250 255

Gln Ala His Lys Gln Trp Val Pro Gln Gly Gln Leu Arg Gly Glu Asp
 260 265 270

Asp Gln Phe Ile Gln Val Thr Lys Thr Gln Asn Phe Asp Arg Cys Asp
 275 280 285

Gln Arg Met Gly Tyr His Phe Gly Phe Thr Gly Tyr Ser Asp Phe Arg
 290 295 300

Pro Asn Thr Asn Gln Met Gly Asn Val Ala Ser Lys Ser Leu Val Ser
 305 310 315 320

Tyr Met Tyr Leu Thr Gly Asn Trp Tyr Asn Phe Thr Ile Gln Ser Ser
 325 330 335

Ser Met Ile Asn Lys Val Ala Ile Ala Pro Ser Leu Val Asn Lys Glu
 340 345 350

Pro Ala Leu Val Tyr Ala Gln Val Asn Met Thr Leu Asn Asp Val His
 355 360 365

Pro Tyr Asp Lys Val Pro Met Gly Pro Ala Glu Asp Leu Lys Val Phe
 370 375 380

Val Asp Leu Val Tyr Ser Tyr Asn Met Pro Ser Asp Lys Lys Asn Tyr
 385 390 395 400

Val Arg Pro Gly Asn Glu Thr Ser Ser Ser Ser Ser Ser Ser Ser
 405 410 415

Ser Ser Ser Ser Ser Ser Glu Ser Ser Ser Ser Ser Ser Glu Ser Val
 420 425 430

Glu Asn Pro Lys Ile Ser Pro Val Glu Gln Tyr Lys Pro Leu Leu Asp
 435 440 445

Lys Val Glu Lys Arg Gly Asn Arg Tyr Arg Arg Asp Leu Asn Ala Ile
 450 455 460

Lys Glu Lys Lys Tyr Tyr Glu Ala Tyr Lys Met Asp Gln Tyr Arg Leu
 465 470 475 480

His Arg Leu Asn Asp Thr Ser Ser Asp Ser Ser Ser Ser Asp Ser Ser
 485 490 495

Ser Ser Ser Ser Ser Glu Ser Lys Glu His Arg Asn Gly Thr Ser Ser
 500 505 510

Tyr Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser
 515 520 525

Ser Ser Tyr Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Tyr Ser Ile

530	535	540
Ser Ser Glu Glu Tyr Tyr Tyr Gln Pro Thr	Pro Ala Asn Phe Ser Tyr	
545	550	555 560
Ala Pro Glu Ala Pro Phe Leu Pro Phe Phe Thr Gly Tyr Lys Gly Tyr		
	565	570 575
Asn Ile Phe Tyr Ala Arg Asn Val Asp Ala Ile Arg Ser Val Gly Lys		
	580	585 590
Leu Val Glu Glu Ile Ala Ser Asp Leu Glu Asn Pro Ser Asn Leu Pro		
	595	600 605
Lys Ala Asn Thr Met Ser Lys Phe Asn Ile Leu Thr Arg Ala Ile Arg		
	610	615 620
Ala Met Gly Tyr Glu Asp Ile Tyr Glu Leu Ala Gln Lys Tyr Phe Val		
	625	630 635 640
Ser Gln Lys Glu Arg Gln Val Ala Gln Phe Ser Asp Lys Lys Phe Ser		
	645	650 655
Lys Arg Val Asp Ala Trp Val Thr Leu Arg Asp Ala Val Ala Glu Ala		
	660	665 670
Gly Thr Pro Ser Ala Phe Lys Leu Ile Phe Asp Phe Ile Lys Glu Lys		
	675	680 685
Lys Leu Arg Gly Tyr Glu Ala Ala Thr Val Ile Ala Ser Leu Ala Gln		
	690	695 700
Ser Ile Arg Tyr Pro Thr Glu His Leu Leu His Glu Phe Phe Leu Leu		
	705	710 715 720
Val Thr Ser Asp Val Val Leu His Gln Glu Tyr Leu Asn Ala Thr Ala		
	725	730 735
Leu Phe Ala Tyr Ser Asn Phe Val Asn Gln Ala His Val Ser Asn Arg		
	740	745 750
Ser Ala Tyr Asn Tyr Tyr Pro Val Phe Ser Phe Gly Arg Leu Ala Asp		
	755	760 765
Ala Asp Tyr Lys Ile Ile Glu His Lys Ile Val Pro Trp Phe Ala His		
	770	775 780
Gln Leu Arg Glu Ala Val Asn Glu Gly Asp Ser Val Lys Ile Gln Val		
	785	790 795 800
Tyr Ile Arg Ser Leu Gly Asn Leu Gly His Pro Gln Ile Leu Ser Val		
	805	810 815

Phe Glu Pro Tyr Leu Glu Gly Thr Ile Gln Ile Thr Asp Phe Gln Arg
 820 825 830
 Leu Ala Ile Met Val Ala Leu Asp Asn Leu Val Ile Tyr Tyr Pro Ser
 835 840 845
 Leu Ala Arg Ser Val Leu Tyr Arg Ala Tyr Gln Asn Thr Ala Asp Val
 850 855 860
 His Glu Val Arg Cys Ala Ala Val His Leu Leu Met Arg Thr Asp Pro
 865 870 875 880
 Pro Ala Asp Met Leu Gln Arg Met Ala Glu Phe Thr His His Asp Pro
 885 890 895
 Ser Leu Tyr Val Arg Ala Ala Val Lys Ser Ala Ile Glu Thr Ala Ala
 900 905 910
 Leu Ala Asp Asp Tyr Asp Glu Asp Ser Lys Leu Ala Leu Asn Ala Lys
 915 920 925
 Ala Ala Ile Asn Phe Leu Asn Pro Glu Asp Val Ser Ile Gln Tyr Ser
 930 935 940
 Phe Asn His Ile Arg Asp Tyr Ala Leu Glu Asn Leu Glu Leu Ser Tyr
 945 950 955 960
 Arg Leu His Tyr Gly Glu Ile Ala Ser Asn Asp His Arg Tyr Pro Ser
 965 970 975
 Gly Leu Phe Tyr His Leu Arg Gln Asn Phe Gly Gly Phe Lys Lys Tyr
 980 985 990
 Thr Ser Phe Tyr Tyr Leu Val Ser Ser Met Glu Ala Phe Phe Asp Ile
 995 1000 1005
 Phe Lys Lys Gln Tyr Asn Thr Lys Tyr Phe Ala Asp Tyr Tyr Lys
 1010 1015 1020
 Ser Ala Asp Tyr Ser Thr Asn Tyr Tyr Asn Phe Asp Lys Tyr Ser
 1025 1030 1035
 Lys Tyr Tyr Lys Gln Tyr Tyr Tyr Ser Lys Asp Ser Glu Tyr Tyr
 1040 1045 1050
 Gln Lys Phe Tyr Gly Gln Lys Lys Asp Tyr Tyr Asn Asp Lys Glu
 1055 1060 1065
 Pro Phe Lys Phe Thr Ala Pro Arg Ile Ala Lys Leu Leu Asn Ile
 1070 1075 1080
 Asp Ala Glu Glu Ala Glu Gln Leu Glu Gly Gln Leu Leu Phe Lys

1085	1090	1095
Leu Phe Asn Gly Tyr Phe Phe Thr Ala Phe Asp Asn Gln Thr Ile 1100 1105 1110		
Glu Asn Leu Pro His Lys Met Arg His Leu Phe Glu Asn Leu Glu 1115 1120 1125		
Asp Gly Tyr Ala Phe Asp Val Thr Lys Phe Tyr Gln Gln Gln Asp 1130 1135 1140		
Val Val Leu Ala Trp Pro Leu Ala Thr Gly Phe Pro Phe Ile Tyr 1145 1150 1155		
Thr Leu Lys Ala Pro Thr Val Phe Lys Phe Glu Val Asp Ala Ser 1160 1165 1170		
Ala Lys Thr His Pro Gln Val Tyr Lys Met Pro Ala Gly His Pro 1175 1180 1185		
Glu Thr Glu Asn Asp Asp Phe Phe Tyr Met Pro Gln Ser Ile Asn 1190 1195 1200		
Gly Ser Val Asp Val Asn Leu Leu Tyr His Arg Met Val Asp Ala 1205 1210 1215		
Lys Val Gly Phe Val Thr Pro Phe Asp His Gln Arg Tyr Ile Ala 1220 1225 1230		
Gly Tyr Gln Lys Lys Leu His Gly Tyr Leu Pro Phe Asn Val Glu 1235 1240 1245		
Leu Gly Leu Asp Phe Val Lys Asp Glu Tyr Glu Phe Glu Phe Lys 1250 1255 1260		
Phe Leu Glu Pro Lys Asp Asp His Leu Leu Phe His Met Ser Ser 1265 1270 1275		
Trp Pro Tyr Thr Gly Tyr Lys Asp Ile Thr Asp Met Arg Pro Ile 1280 1285 1290		
Ala Glu Asn Pro Asn Ala Lys Ile Val His Asp Asp Asn Gln Ser 1295 1300 1305		
Thr Lys Thr Met Glu His Thr Phe Gly Gln Asp Met Thr Gly Val 1310 1315 1320		
Ala Leu Arg Phe His Ala Lys Tyr Asp Phe Asp Leu Ile Asn Phe 1325 1330 1335		
Gln Gln Phe Trp Ser Leu Ile Gln Lys Asn Asp Phe Val Ser Ala 1340 1345 1350		

Val Asn Tyr Pro Phe Ala Tyr Gln Pro Tyr Glu Tyr His Gln Phe
 1355 1360 1365
 Asn Leu Phe Tyr Asp Ser Gln Arg Thr His Ala Lys Ser Phe Lys
 1370 1375 1380
 Phe Tyr Ala Tyr Gln Lys Phe Gly Ala Pro Ser Phe Glu Glu Thr
 1385 1390 1395
 Gly Pro Lys His Pro Ala Asn Arg His Ser Tyr Ser Gly Asn Tyr
 1400 1405 1410
 Tyr Glu Ser Asn Tyr Ala Gln Pro Phe Val Tyr Ser Pro Gly Ser
 1415 1420 1425
 Gln Arg Arg Tyr Glu Gln Phe Phe Arg Asn Ala Ala Ser Gly Ile
 1430 1435 1440
 Arg Asn Ser Phe Val Arg Tyr Tyr Asp Phe Gly Phe Glu Phe Tyr
 1445 1450 1455
 Ala Pro Gln Tyr Lys Ser Glu Phe Thr Phe Thr Thr Ala Phe Ala
 1460 1465 1470
 Asp Ser Pro Val Asp Lys Thr Ser Arg Gln Leu Tyr Tyr Phe Tyr
 1475 1480 1485
 Ala Ser Pro Met Phe Pro Ser Gln Ser Tyr Phe Lys Asp Ile Pro
 1490 1495 1500
 Phe Ser Gly Lys Gln Phe Gln Phe Cys Ala Thr Ala Thr Ser Glu
 1505 1510 1515
 Phe Pro Arg Val Pro Tyr Leu Lys Phe Ser Asp Phe Asp Lys Tyr
 1520 1525 1530
 Tyr Gly Asp Ala Ser Gln Tyr Phe Asp Phe Leu Tyr Gly Glu Ser
 1535 1540 1545
 Cys Gln Gly Gly Ala His Ile Ala Val Lys Gly Lys Gln Lys Gln
 1550 1555 1560
 Thr Gly Lys Tyr Arg Glu Tyr Leu Arg Phe Ser Asp Val Ala Lys
 1565 1570 1575
 Ala Cys Lys Glu Gln Met Ala Asn Gly Tyr Tyr Gln Phe Glu Glu
 1580 1585 1590
 Cys Gln Gln Ala Ile Asp Gln Ala Tyr Tyr Tyr Asp Phe Tyr Asp
 1595 1600 1605
 Tyr Ala Ile Glu Tyr Lys Asp Val Gly Ser Val Ala Lys Asn Leu

1610	1615	1620
Thr Asn Lys Phe Tyr Asn Tyr 1625 1630	Phe Gln Tyr Ala	Phe Tyr Pro Tyr 1635
Phe Glu Ser Asn Phe Phe Tyr 1640 1645	His Gly Lys Ser	Asn Tyr Ile Lys 1650
Ala Glu Phe Glu Phe Ala Pro 1655 1660	Tyr Gly Asp Tyr	Tyr Asn Ala Ser 1665
Phe Phe Gly Pro Ser Tyr Ala 1670 1675	Phe Gln Val Gln	Asn Tyr Pro Val 1680
Phe Asn Asp Tyr Ser Thr Tyr 1685 1690	Phe Pro Tyr Phe	Phe Lys Tyr Thr 1695
) Phe Phe Pro Arg Tyr Gln Pro 1700 1705	Tyr Tyr Met His	Arg Leu Pro Ser 1710
His Lys Pro Arg Asn Arg Pro 1715 1720	Tyr Tyr Glu Leu	Ser Asn Tyr Glu 1725
Gln Phe Ala Ile Phe Asp Arg 1730 1735	Lys Pro Gln Tyr	Pro Ser Cys Ser 1740
Phe Ser Asn Asp Tyr Phe Tyr 1745 1750	Thr Phe Asp Asn	Lys Lys Tyr Phe 1755
Tyr Asp Met Gly Glu Cys Trp 1760 1765	His Ala Val Met	Tyr Thr Val Lys 1770
Pro Asp Tyr Asp Phe Tyr Ala 1775 1780	Gln Gln Ser His	Phe Tyr Asn Ser 1785
) Asp Phe Glu Tyr Lys Tyr Lys 1790 1795	Asn Gly Phe Glu	Glu Tyr Glu Gln 1800
Phe Ala Ala Leu Ala Arg Arg 1805 1810	Gly Ser Asp Asn	Gln Leu Tyr Phe 1815
Lys Phe Leu Phe Gly Asp Asn 1820 1825	Tyr Ile Glu Val	Phe Pro Asn Asn 1830
Gly Gly Val Pro Phe Val Lys 1835 1840	Tyr Asn Gly Arg	Pro Tyr Asp Ile 1845
Ser Lys Ser Asn Ile Ala His 1850 1855	Phe Glu Tyr Lys	Glu Gly Tyr Pro 1860
Ser Phe Pro Phe Phe Tyr Ala 1865 1870	Phe Ala Tyr Pro	Asn Lys Asp Leu 1875

Glu Val Ser Phe Phe Gly Gly Lys Leu Lys Phe Ala Thr Asp Gly
 1880 1885 1890
 Tyr Arg Ala Arg Phe Phe Ser Asp Tyr Ser Phe Tyr Asn Asn Phe
 1895 1900 1905
 Val Gly Leu Cys Gly Thr Asn Asn Gly Glu Tyr Phe Asp Glu Phe
 1910 1915 1920
 Val Thr Pro Asp Gln Cys Tyr Met Arg Lys Pro Glu Phe Phe Ala
 1925 1930 1935
 Ala Ser Tyr Ala Ile Thr Gly Gln Asn Cys Thr Gly Pro Ala Lys
 1940 1945 1950
 Ala Phe Asn Tyr Ala Tyr Gln Gln Lys Ala Lys Gln Glu Cys Val
 1955 1960 1965
 Lys Arg Glu Val Tyr Tyr Gly Asp Ile Ile Tyr Asn Gln Glu Tyr
 1970 1975 1980
 Tyr His Pro Arg Tyr Arg Tyr Tyr Asn His Asn Val Glu Glu Ser
 1985 1990 1995
 Ser Ser Ser Ser Ser Ser Ser Ser Asp Ser Ser Ser Ser Ser
 2000 2005 2010
 Ser Ser Ser Glu Phe Ser Ser Leu Ser Arg Ser Gly Ser Ser Ser
 2015 2020 2025
 Ser Ser Ser Ser Ser Glu Glu Gln Lys Glu Phe His Pro His Lys
 2030 2035 2040
 Gln Glu His Ser Met Lys Glu Cys Pro Val Gln His Gln His Gln
 2045 2050 2055
 Phe Phe Glu Gln Gly Asp Arg Ile Cys Phe Ser Leu Arg Pro Leu
 2060 2065 2070
 Pro Val Cys His Ser Lys Cys Ala Ala Thr Glu Lys Ile Ser Lys
 2075 2080 2085
 Tyr Phe Asp Val His Cys Phe Glu Lys Asp Ser Thr Gln Ala Lys
 2090 2095 2100
 Lys Tyr Lys Ser Glu Ile Gly Arg Gly Tyr Thr Pro Asp Phe Lys
 2105 2110 2115
 Ser Phe Ala Pro His Lys Thr Tyr Lys Phe Asn Tyr Pro Lys Ser
 2120 2125 2130
 Cys Val Tyr Lys Ala Tyr

2135

<210> 9
 <211> 1790
 <212> PRT
 <213> Anthonomus grandis

<400> 9

Met Trp Ser Thr Val Ala Leu Cys Leu Leu Val Gly Leu Ser Tyr Val
 1 5 10 15

Ser Ser Ser Ser Pro Ala Trp Lys Asp Asn Thr Glu Tyr Val Tyr Ser
 20 25 30

Val Asn Gly Arg Thr Leu Thr Gly Leu Glu Glu Thr Ala Asp Gln Tyr
 35 40 45

Ser Gly Val Phe Leu Glu Ala Lys Leu His Leu Ser Ile Arg Pro Asp
 50 55 60

Gly Lys Leu Gln Gly Arg Ile Ser Glu Pro Lys Phe Ala Gln Ile Leu
 65 70 75 80

Ser Gln Leu Pro Asp Gly Trp Lys Ser Glu Ile Pro Asp Ser Gln Ile
 85 90 95

Ser Tyr Lys Gln Leu Gln Leu Ser Gln Lys Pro Phe Gln Leu Val Leu
 100 105 110

Glu Asn Gly Leu Ile Lys Arg Leu Ile Val Glu Lys Asp Thr Leu Asn
 115 120 125

Trp Glu Ala Asn Ile Ile Lys Ser Ile Val Ser Gln Phe Gln Met Asp
 130 135 140

Leu Gln Gly Glu Asn Ala Leu Gln Asn Pro Thr Ser Ser Phe Pro Thr
 145 150 155 160

Asn Glu Tyr Met Asp Ala Val Phe Lys Thr Met Glu Glu Thr Val Thr
 165 170 175

Gly Lys Thr Glu Thr Ile Tyr Asp Ile His Arg Leu Pro Glu Tyr Leu
 180 185 190

Val Gln Ser Gln Pro Trp Ile Ala Pro Gln Tyr Lys Leu Lys Gly Glu
 195 200 205

Gly Asp Leu Ile Glu Val Ile Lys Ser Lys Asn Tyr Thr Asn Ala Arg
 210 215 220

Asp Arg Pro Ser Tyr His Tyr Gly Phe Gly Glu Ile Glu Glu Ser Glu
 225 230 235 240

Pro Thr Ala Asn Lys Met Gly Gln Phe Phe Ile Arg Gln Ser Asn Ser
 245 250 255
 Arg Ala Ile Leu Thr Gly Lys Pro Ser Arg Tyr Ile Ile Gln Ser Thr
 260 265 270
 Tyr Thr Val Asn Lys Ile Met Val Asn Pro Ile Leu Lys Asn Lys Glu
 275 280 285
 Met Gly Ser Ile Thr Ser Met Val Asn Val Thr Leu Leu Glu Ile Asn
 290 295 300
 Asn Gln Gln Gln Gln Pro Glu Glu Leu Ser Asn Pro Leu Asp Ile Gly
 305 310 315 320
 Asn Leu Val Tyr Thr Tyr Gly Gln Pro Lys Asn Asn Gln Val His Ser
 325 330 335
 Lys Leu Asn Glu Asn Leu Met Glu Asp Ser Ser Ser Glu Glu Ser Ser
 340 345 350
 Glu Gln Glu Met Thr His Arg Arg Phe Arg Arg Ser Ala Asn Ser Leu
 355 360 365
 Thr Lys Gln Trp Arg Glu Ser Ser Glu Glu Trp Asn Gln Gln Gln Gln
 370 375 380
 Gln Pro Arg Pro Gln Leu Thr Arg Ala Pro His Ser Pro Leu Leu Pro
 385 390 395 400
 Ser Met Val Gly Tyr His Gly Lys Ser Ile Lys Glu Asn Lys Asp Phe
 405 410 415
 Asp Ile Arg Gln Asn Val Glu Asn Leu Val Thr Glu Ile Ser Asp Glu
 420 425 430
 Ile Lys Gln Ser Glu Lys Thr Ile Ser Lys His Thr Leu Asp Lys Tyr
 435 440 445
 Thr Ile Leu Asn Thr Leu Val Arg Leu Met Asp Glu Asp Asp Ile Gln
 450 455 460
 Phe Val Ala Glu Gln Met Tyr Ser Gln Met Lys Asn Gly Gln Gln Arg
 465 470 475 480
 Tyr Thr Trp Ser Ile Phe Arg Asp Ser Val Ala Glu Ala Gly Thr Gly
 485 490 495
 Pro Ala Leu Leu Asn Ile Lys Lys Trp Ile Glu Thr Lys Lys Ile Gln
 500 505 510
 Lys Thr Glu Ala Ala Gln Val Ile Gly Thr Leu Ala Gln Ser Thr Arg
 515 520 525

Phe Pro Thr Glu Glu Tyr Met Arg Lys Phe Phe Glu Leu Ala Thr Glu
 530 535 540
 Thr Gln Val Arg Gln Gln Glu Thr Leu Asn Gln Thr Cys Ile Leu Ser
 545 550 555 560
 Tyr Thr Asn Leu Val His Lys Val Tyr Ile Asn Arg Asn Glu Ser His
 565 570 575
 Asn Gln Phe Pro Val His Ala Phe Gly Ser Phe Tyr Thr Lys Lys Gly
 580 585 590
 Arg Glu Phe Val Lys Thr Thr Val Ile Pro His Leu Lys Gln Glu Leu
 595 600 605
 Glu Lys Ala Ile Ser Asn Ala Asp Asn Asn Lys Ile His Val Met Ile
 610 615 620
 Arg Ala Leu Gly Asn Ile Gly His Lys Ser Ile Leu Asn Val Phe Gln
 625 630 635 640
 Pro Tyr Phe Glu Gly Glu Lys Gln Val Ser Gln Phe Gln Arg Leu Met
 645 650 655
 Met Val Ala Cys Met Asp Arg Leu Ala Asp Cys Tyr Pro His Ile Ala
 660 665 670
 Arg Ser Val Phe Tyr Lys Ile Tyr Gln Asn Thr Ala Glu Leu Pro Glu
 675 680 685
 Ile Arg Val Val Ala Val His Gln Leu Ile Arg Ala Asn Pro Pro Val
 690 695 700
 Glu Met Leu Gln Arg Met Ala Gln Tyr Thr Asn Thr Asp Ser Gln Glu
 705 710 715 720
 Glu Val Asn Ala Ala Val Lys Ser Val Ile Glu Ser Ser Cys Lys Leu
 725 730 735
 Glu Ser Ser Lys His Ala Glu Leu Arg Lys Ala Ala Gln Ser Ala Arg
 740 745 750
 Pro Leu Leu Thr Lys Lys Gln Tyr Gly Met Glu Gln Ser Tyr Ile Asn
 755 760 765
 Leu Arg Asp Tyr Val Ala Glu Gln Met Gly Leu Glu Leu His Val Gln
 770 775 780
 Arg Thr Ser His Ser Ser Ala Glu Ser Ser Phe Pro Lys Ile Met Lys
 785 790 795 800

Phe Gln Leu His Gln His Asn His Gly Met Lys Gln His Ile Leu Ser
 805 810 815
 Thr Gly Gly Met Ile Ser Ser Ile Arg Glu Leu Leu Asn Val Leu Tyr
 820 825 830
 Arg Gln Thr Glu Val Phe Gln Gln Glu Lys Ser Gln Arg Ser Gln Glu
 835 840 845
 Gln Gly Lys Asp Asn Glu Trp Ser Ser Ala Asn Ile Ala Arg Leu Met
 850 855 860
 Asn Tyr Glu Arg Asp Glu Arg Glu Gln Leu Glu Ala Ile Ile Tyr Ala
 865 870 875 880
 Gln Val Glu Asp Val Gln Lys Leu Trp Ser Phe Asp Asn Gln Thr Leu
 885 890 895
 Glu His Leu Pro Glu Val Ile Arg Gln Gln Glu Glu Ile Tyr Arg Gln
 900 905 910
 Gly Lys Asp Phe Ser Tyr Val Lys Leu Lys Gln Leu Asn Glu Met Ala
 915 920 925
 Leu Ser Phe Pro Thr Glu Met Gly Leu Pro Phe Leu Tyr Thr Tyr Asp
 930 935 940
 Val Pro Val Leu Met Lys Val Glu Gly Lys Ile Arg Ala Leu Ala Asn
 945 950 955 960
 Pro Ala Ile Ser Arg Asn Asn Lys Leu Thr Lys Pro Glu Gln Ile Ser
 965 970 975
 Thr Glu Ile Lys Ala Arg Val Thr Cys Thr Gly Lys Thr Gln Ser His
 980 985 990
 Leu Ser Phe Val Thr Pro Phe Asp His Gln Ile Tyr Met Ala Gly Tyr
 995 1000 1005
 Asp Lys Asn Met Tyr Val Ser Ile Pro Val Asn Ala Arg Leu Glu
 1010 1015 1020
 Met Asp Val Lys Ser Lys Glu Ala Lys Ile Glu Phe Glu Val Glu
 1025 1030 1035
 Gln Gln Gln Gln Asp Ser Arg Leu Val His Ile Thr Ser Thr Pro
 1040 1045 1050
 Tyr Thr Ser Arg Ser Asp Val Met Ala Ile Ser Pro Val Ala Leu
 1055 1060 1065
 Arg Pro Asn Thr Tyr Val Ile Lys Ser His Arg Asn Asn His Arg
 1070 1075 1080

Tyr Phe Asp Phe Asn Phe Gly Lys Lys Glu Thr Gly Leu Thr Phe
 1085 1090 1095
 Arg Gly Trp Gly His His Pro Glu Gln Ser Ile Gly Phe Asn Asp
 1100 1105 1110
 Leu Val Ser Met Trp Gln Ser Arg Gly Val Ala Gly Val Trp Glu
 1115 1120 1125
 Gln Leu Trp Asp Lys Cys Ser Thr Glu Tyr Ser Glu Ala Thr Ile
 1130 1135 1140
 Ser Phe Ile Pro Ser Gln Ser Thr Thr Arg Lys Ala Thr Phe Arg
 1145 1150 1155
 Ile Asn Val Asp Gln Lys Tyr Gln Lys Gln Pro Glu Thr Gln Ser
 1160 1165 1170
 Pro Glu Asp Leu Leu Thr Leu Asn Gln Leu Ser Ser Lys Leu Gln
 1175 1180 1185
 Lys Asp Glu Pro Lys Gln Arg Gln Gln Glu Ile Lys Lys His Val
 1190 1195 1200
 Gly Ser Gly Ile Asn Ser Ala Leu Leu Ser Cys Ser Asp Ile Ser
 1205 1210 1215
 Leu Glu Phe Glu Gly Asp Lys Lys Tyr Glu His Val Val Gly Phe
 1220 1225 1230
 Ala Val Ala Lys Ser Asn Ala Asp Pro Lys Ser Arg Val Met Phe
 1235 1240 1245
 Tyr Tyr Lys Asn Lys Asn Glu Asn Lys Gln Gly Ala Leu Glu Ile
 1250 1255 1260
 Arg Ser Glu Ile Pro Asn Thr Asn Gly Leu Asn Leu Asp Asp Ser
 1265 1270 1275
 Leu Asp Thr Glu Pro Ser Thr Lys Tyr Asn Met Arg Leu Gln Tyr
 1280 1285 1290
 Gly Asn Ser Glu Asn Asp Ala Phe Glu Ile Ser Ala Gln Ala Gln
 1295 1300 1305
 Leu Ser Arg Ser Gln Glu Arg Lys Gln Tyr Leu Ile Asn Gln Asp
 1310 1315 1320
 Pro Leu Tyr His Val Cys Lys Glu Gln Met Gln Gln Lys Asn Phe
 1325 1330 1335

Gln Leu Pro Ala Cys Gln Asn Met Thr Ile Lys Ala Asn Phe Leu
 1340 1345 1350
 Asp His Ile Lys Tyr Gln Val Gln Tyr Gln Lys Leu Asn Trp Lys
 1355 1360 1365
 Leu Val Glu Thr Leu Glu Gly Met Phe Lys Gly Leu Arg Val Leu
 1370 1375 1380
 Tyr Tyr Pro Met Thr Glu Ile Lys Ser Ile Ser Ser Val Gly Gln
 1385 1390 1395
 Asn Val Val Glu Gly Glu Val Gln Phe Gln Pro Glu Asp Phe Arg
 1400 1405 1410
 Gln Val Asn Val Thr Val Arg Asn Thr Asp Glu Glu Thr Val Phe
 1415 1420 1425
 Phe Asn Ile Ser Leu Asn Asn Glu Leu Leu Arg Thr Leu Leu Val
 1430 1435 1440
 Pro His Pro Val Phe His Ala Lys Cys Arg Phe Ala Gly Leu Met
 1445 1450 1455
 Gln Gly Gln Gln Asn Tyr Arg Pro Thr Cys Val Ile Asp Gln Thr
 1460 1465 1470
 Thr Ala Gln Thr Phe Ser Asn Lys Thr Tyr Ser Val Asn Leu Asp
 1475 1480 1485
 Lys Glu Pro Thr Val Val Met Gln Tyr Val Pro Lys Asp Ala Arg
 1490 1495 1500
 Val Asn Gly Gln Gln Ser Lys Ser Val Glu Gln Leu Leu Arg Glu
 1505 1510 1515
 Ser Ile Glu Asn Tyr Val Val Leu Val Arg Gln Val Ala Ala Asn
 1520 1525 1530
 Gln Lys Glu Val Ile Ile Asn Leu Asn His Pro Arg Thr Gln Gly
 1535 1540 1545
 Lys Thr Val Lys Ile Glu Met Lys Pro Ser Glu Asp Arg Gln Lys
 1550 1555 1560
 Ser Ala Arg Asn Pro Ala Ala Lys Val Thr Ile Asp Gly Gln Glu
 1565 1570 1575
 Met His Phe Asp Asp Lys Gln Ile Ala Asp Lys Cys Asp Gly Tyr
 1580 1585 1590
 Val Gln Val Tyr Ala Leu Pro Asn Gly Glu Val Lys Leu Glu Val
 1595 1600 1605

Glu Asp Ala Phe Tyr Leu Ile Tyr Asp Gly Gln Arg Val Lys Val
 1610 1615 1620
 Thr Ala Thr Gly Asn Lys Leu Arg Asp Ser Val Tyr Gly Leu Cys
 1625 1630 1635
 Gly Arg Phe Ser Gln Asp Lys His Glu Asp Phe Thr Val Pro Ser
 1640 1645 1650
 Asn Cys Val Thr Arg Asp Thr Arg Lys Phe Val Glu Ser Tyr Gln
 1655 1660 1665
 Val Glu Lys Gly Gln Gln Trp Arg Asn Ser Pro Ser Glu Gln Cys
 1670 1675 1680
 Ile Lys Lys Val Leu Pro Leu Tyr Thr Asn Val Ile Ser Asn Gln
 1685 1690 1695
 Asn Gly Ser Gln Met Arg Thr Lys Leu Ala Ser Gly Thr Val Met
 1700 1705 1710
 Lys His Arg Tyr Ile Glu Glu Asn Gly Glu Ile Cys Phe Thr Ile
 1715 1720 1725
 Arg Pro Leu Pro Val Cys Asn Thr Ser Val Lys Gln Val Val Thr
 1730 1735 1740
 Lys Asn Val Pro Val His Cys Ile Gln Gly Thr Lys Thr Ala Tyr
 1745 1750 1755
 Tyr Tyr Lys Ser Leu Ile Asp Gln Gly Gly Asn Pro Asp Phe Ser
 1760 1765 1770
 Arg Lys Ser Glu Thr Arg Thr Ala Arg Met Glu Val Ala Ala Gln
 1775 1780 1785
 Cys Asn
 1790

<210> 10
 <211> 1862
 <212> PRT
 <213> Blattella germanica

<400> 10

Met Thr Trp Asn Ala Leu Leu Cys Cys Leu Leu Val Ser Ala Ala Ser
 1 5 10 15

Ala Ile Thr Pro Gly Trp Leu Pro Ile Asn Ser Gln Leu Asp Tyr His
 20 25 30

Val His Gly Arg Thr Phe Ser Ser Leu Phe Gln Val Ala Asn Gln Tyr

35 40 45
 Thr Gly Ile Leu Tyr Lys Ala Arg Leu Ser Leu Asp Arg Asn Glu Asp
 50 55 60
 Gln Leu Ile Thr Gly Lys Val Thr Glu Ala Gln Phe Ser Pro Val Asn
 65 70 75 80
 Thr Gln Phe Ser Ser Gly Trp Asp Glu Ser Val Pro Asp Glu Lys Leu
 85 90 95
 His Trp Asp Val Val Pro Met Ser Gln Gln Pro Phe Gln Ile Glu Leu
 100 105 110
 Asn Ser Arg Gly Glu Val Arg Lys Leu Arg Val Asn Lys Phe Val Glu
 115 120 125
) Leu Trp Glu Ile Asn Met Ile Lys Ala Ile Ile Ser Gln Leu Gln Val
 130 135 140
 Val Val Asp Glu Asp Lys Lys Val Tyr Arg Val Phe Glu Ser Thr Val
 145 150 155 160
 Thr Gly Arg Cys Glu Ala Leu Tyr Glu Val Asp His Leu Tyr Pro Thr
 165 170 175
 Thr Tyr Leu Asn Pro Trp Gln Trp Thr Gln Gln His Asp Thr Lys Leu
 180 185 190
 Arg Ile Met Lys Thr His Gln Phe Thr Asn Cys Arg His Asn Ser Ala
 195 200 205
 Tyr Lys Leu His Phe Asn Ala Phe Glu Tyr Phe His Leu Lys Gln His
 210 215 220
) Lys Pro Glu Thr Phe Leu Ser Asn Ser Ala Val Ser Arg Val Ile Ala
 225 230 235 240
 Asp Gly Asp Asn Leu Lys Asn Phe Thr Phe Tyr Ser Gly Glu Thr Ile
 245 250 255
 His Lys Ile Val Leu Asn Pro Glu Ile Tyr Asn Lys Gln Lys Gly Met
 260 265 270
 Leu Val Ser His Ile Asn Val Thr Val Glu Arg Lys Gly Arg Glu Leu
 275 280 285
 Thr Val Ile Asp Tyr Glu Leu Arg Asn Val Gly Asp Leu Ser Tyr Ser
 290 295 300
 Thr Ser Leu Val Lys Ala His Ser Met Arg Asn Ser Ala Ser Met Asp
 305 310 315 320

Leu Ser Ser Ser Ser Met Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
 325 330 335
 Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Glu His
 340 345 350
 His Ser His Asn Gln Lys Leu Ser Lys Lys Arg Gln Val Pro Leu Pro
 355 360 365
 Arg Pro Leu Phe Glu Ala Asn Phe Asp Ala Ser Ser Gly Leu Thr Thr
 370 375 380
 Glu Gln Pro Val Thr Phe Arg Pro Arg Arg Gln Leu Phe Gln Gly Gln
 385 390 395 400
 Asp Met Ser Glu Glu Glu Thr Glu Gln Asn Pro Glu Ile Ile Pro Ala
 405 410 415
 Asn Leu Leu Pro Thr Tyr Asn Leu Ile His Asn Thr Lys Gln Val Asp
 420 425 430
 Val Asp Pro Val Gly Val Ala Val Arg Leu Ser Lys Asp Ile Ala Ala
 435 440 445
 Asp Leu Gln Gly Glu Pro Arg Val Gly Glu Asp Arg His Ile Leu Pro
 450 455 460
 Arg Phe Thr Ile Leu Val Arg Leu Leu Lys Gln Leu Lys Val Ser Gln
 465 470 475 480
 Ile Met Glu Ala Ala Arg Lys Leu Tyr Lys Leu Glu Asn Asp His Pro
 485 490 495
 Asn Tyr Met Asn Trp Asp Thr Trp Arg Val Tyr Arg Asp Ala Val Ser
 500 505 510
 Gln Ala Gly Thr Trp Ser Ala Leu Asn Ser Ile Gln Gln Phe Ile Ser
 515 520 525
 Ser Glu Met Val Glu Pro Lys Glu Ala Ser His Leu Ile Thr Val Leu
 530 535 540
 Pro Ala Ala Val Ser Asp Lys Asn Lys Ala Tyr Leu His Phe Leu Phe
 545 550 555 560
 Glu Met Thr Lys Asp Pro Val Phe Lys Asn Met Thr Tyr Val Asn Thr
 565 570 575
 Ser Leu Val Leu Ala Phe Ser Glu Val Ile His Gln Val Glu Met His
 580 585 590
 Gln Val Arg Asp Leu Lys Ile Lys Ser Val Tyr Ile Pro Tyr Leu Val

595	600	605
Gln Glu Phe Asp Asp Ala Val Lys Glu Asn Asn Ser Ile Lys Ile Gln 610 615 620		
Leu Tyr Thr His Ala Leu Gly Val Thr Gly Asn Thr His Ile Leu His 625 630 635 640		
Tyr Leu Arg Pro Tyr Ile Ile Gln Leu Lys Thr Ile Thr His His Gln 645 650 655		
Arg Leu Phe Met Val Gln Ser Leu Glu Arg Val Val Glu His Asn Pro 660 665 670		
Arg Lys Val Ile Asp Leu Leu Leu Ser Leu Tyr Leu Asp Gln Asn Glu 675 680 685		
His Ala Asp Ile Arg Val Glu Ala Leu Phe Leu Leu Met Lys Ala Asp 690 695 700		
Pro Ser Ile His Val Leu Lys Met Val Ala Glu Leu Thr His Thr Glu 705 710 715 720		
Ser Asn Asn Gln Val Leu Ser Ala Ser Gln Ser Ala Ile Lys Ser Ala 725 730 735		
Ala Asn Val Glu Gly Asp Ile Tyr Ser Glu Met Arg Arg Lys Ala Lys 740 745 750		
Ala Val Glu His Leu Leu Ser Thr Arg Asn Met Asp Val Ser Tyr Ser 755 760 765		
Lys Ser Tyr Leu Tyr Gly Tyr Lys Ser Lys Lys Ile Asn Tyr Asp Ser 770 775 780		
Leu Tyr Asn Leu Asn Tyr Ile Gly Ser Glu Asp Ser Ile Tyr Pro Lys 785 790 795 800		
Ser Met Leu Leu Asn Ile Phe Thr Asn Asn Leu Gly Arg Ile Asn Thr 805 810 815		
His Val Gln Lys Gly Tyr Met Val Ser Ser Met Thr Asp Leu Trp Glu 820 825 830		
Ala Phe His Thr Ile Tyr Lys Lys Asp Asn Gly Ser Pro Thr Asp Pro 835 840 845		
Lys Thr Leu Val Lys Phe Val Glu Gly Asn Leu Lys Tyr Phe Asn Met 850 855 860		
Gly Val Gln Lys Phe Trp Ala Phe Asp Asn Thr Thr Phe Ser Asn Ala 865 870 875 880		

Ser Ala Val Ile Gln Glu Phe Leu Lys Thr Tyr Lys Lys Pro Thr Asn
 885 890 895
 Phe Asn His Thr Lys Leu Ser Ser Ser Ser Ile Thr Leu Thr Leu
 900 905 910
 Pro Cys Ala Met Gly Leu Pro Ala Tyr Phe Lys Met Asn Ser Pro Ser
 915 920 925
 Leu Trp Lys Tyr Asn Gly Glu Phe Ser Ile Gln Thr Asp Ala Lys Thr
 930 935 940
 Asp Val Pro Met Ser Leu Glu Asn Phe Met Asn Ile Thr Gly Ser Ile
 945 950 955 960
 Asn Leu Met Phe Ser Gln Met Tyr His Ala Gln Leu Ala Phe Ser Thr
 965 970 975
 Ala Phe Asp Asn Lys Glu Tyr Ile Ser Gly Leu Asp Arg Lys Val Glu
 980 985 990
 Val His Val Pro Val Lys Phe Gln Ile Asn Leu Asp Phe Lys Asn His
 995 1000 1005
 Asn Gly Phe Ile Arg Ile Ile Pro Leu Phe Thr Asp Arg Asp Tyr
 1010 1015 1020
 Asp Val Leu Gln Trp Gln Thr Ile Pro Tyr Thr Thr Ile His Asn
 1025 1030 1035
 Val Pro Asp Phe Glu Thr Val Tyr Met Asp Gln Leu Phe Lys Leu
 1040 1045 1050
 Ile His Val Arg Lys Thr Ala His Phe Glu Lys Lys Met Gly Glu
 1055 1060 1065
 Asn Thr Gly Ile Val Phe Lys Val Lys Tyr Asp Thr Asp Gln Glu
 1070 1075 1080
 Phe Leu Asp Thr Lys Trp Phe Leu Asp Glu Phe Lys Val Leu Gln
 1085 1090 1095
 Leu Phe Thr Gly Leu Asn Tyr Asp Val Pro Thr Lys Asp Ile Phe
 1100 1105 1110
 Tyr Asn Asn Leu Thr Val Tyr Tyr Asp His Glu Asp Thr Lys Asn
 1115 1120 1125
 His Ala Val Ser Phe Thr Val Thr Lys Glu Gln Ser Lys Phe Tyr
 1130 1135 1140
 Glu Thr Leu Asn Pro Val Val Gln Gln Asn Leu Lys Leu Ser Ser

1145	1150	1155
Gly Lys Lys Gln Lys His Arg Asn Val Lys Ser His Arg Ile Arg	1160	1165
Arg Glu Tyr Thr Glu Asp Glu Asn Pro Ala Ile Pro Lys Asp Lys	1175	1180
Gln Pro Asn Ser His Pro Arg Arg Gln Glu Tyr Leu Ser Lys Ser	1190	1200
Met Ala Leu Thr Gly Asp Ala Thr Ala Val Val Leu Asp Met Thr	1205	1210
Leu Lys Phe Glu Gly Pro Ala Glu Ser Tyr Phe Thr Thr Thr Val	1220	1225
Ser His Ala Thr Ser Leu Val Asn Gly Ser Ser Asn Tyr Leu Leu	1235	1240
Phe Tyr Asp Gln His Tyr Tyr Glu Glu Lys Lys Arg Asn Gln Phe	1250	1255
Cys Leu Ser Trp Ser Val Tyr Lys Pro Gln Val Pro Ile Met Asn	1265	1270
Ile Tyr Ser Ala Phe Glu Phe Asp Pro Asn Ser Lys Val His Ala	1280	1285
Ile Met Asn Ile Gly Lys Glu Cys Glu Asn Gly Gly Ser Ala Val	1295	1300
Ala Asn Ile Asp Met Leu Arg Leu Ser Glu His Leu Asp Tyr Val	1310	1315
Lys Asn Leu Thr Val Ser Lys Leu Cys Asp His Glu Met Arg Thr	1325	1330
Lys Arg Asp His Val Leu Pro Ala Cys Arg Asn Ser Thr Glu Arg	1340	1345
Ala Ser Asp Leu Asn Arg Val His Val Asp Ile Asn Tyr Asn Leu	1355	1360
Lys Gln His Glu Thr Phe Lys Arg Arg Val Tyr Lys Val Tyr Asp	1370	1375
Phe Val Arg Thr His Leu Tyr Pro His Val Ser Glu Asp Val Ile	1385	1390
Val Asp Asn Pro Ala Gln Phe Ile Ser Ala Asn Phe Thr Leu Lys	1400	1405

Asp Asn Thr Arg Ala Phe Asn Val Ser Ile Glu Thr Pro Val Leu
 1415 1420 1425
 Ser Val Asn Ala Thr Ser Val Arg Leu Gln Ser Trp Gln Ser Glu
 1430 1435 1440
 Met Leu Arg Met Asn Pro Arg Thr Ser Phe Ala Lys Arg Phe Ala
 1445 1450 1455
 Lys Trp Ala Leu Pro Leu Tyr Tyr Lys Pro Thr Cys Val Val Asp
 1460 1465 1470
 Ser Ser Tyr Ile Asn Thr Phe Asp Asn Phe Thr Tyr Ser Ala His
 1475 1480 1485
 His Ile Val Gln Asn Asp Ala Phe Tyr Thr Ile Leu Asp Ile Pro
 1490 1495 1500
 Gln Lys Phe Asn Met Glu Tyr Phe Lys Val Ala Phe Lys Pro Thr
 1505 1510 1515
 Ser Pro Val Pro Asn Met Gln Arg Glu Val Leu Val Phe Leu Arg
 1520 1525 1530
 Asn Ala Lys Ile Glu Leu Lys Pro Asn Gln Gly Met Pro Glu Val
 1535 1540 1545
 Tyr Val Glu Gly Lys Arg Val Asp Tyr Asn His His His Ser Thr
 1550 1555 1560
 Asp Leu Asn Val Ser Gln Asp Arg Ile Gly Tyr Val Tyr Ala Leu
 1565 1570 1575
 Pro Thr Lys Ala Ala His Ile Val Phe Pro Ser Tyr Glu Ile Glu
 1580 1585 1590
 Met Phe Tyr Asp Gly Ser Arg Ile Met Ile Gln Ala Ser Asn Met
 1595 1600 1605
 Tyr Arg Asn Phe Thr Lys Gly Leu Cys Gly Asn Met Asp Gly Glu
 1610 1615 1620
 Phe Val Asn Asp Val Leu Thr Pro Trp Gly Cys Tyr Ala Lys Asp
 1625 1630 1635
 Met Ala Leu Phe Val Ala Ser Tyr Ala Asp Asn Ser Asn Ser Glu
 1640 1645 1650
 Val Arg Lys Ile Lys Ala Thr Gln Asn Glu Gln Thr Cys Val Pro
 1655 1660 1665
 Gln Phe His Gln Pro Leu Val Ser His Gln Met Arg Leu Ser Gln

1670 1675 1680
 Val Ile Lys Leu Ala Asp Thr Ser Ser Ser Ser Glu Ser Ser Ser
 1685 1690 1695
 Ser Ser Glu Ser His Glu Asn Asn Ser Ser Pro Ser Ser Glu Ser
 1700 1705 1710
 Gln Val Asn Lys Ser Lys Arg Gln Pro Asn Ser Arg Pro Arg Ser
 1715 1720 1725
 Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Asn Glu Ser
 1730 1735 1740
 Val Leu Ala Lys Lys Ile Ile Asn Asn Gln Ile Gly Pro Lys Pro
 1745 1750 1755
) Thr Leu Ile Pro Ser Gln Ser Pro Met Thr Ser Asp Asp Lys Cys
 1760 1765 1770
 Met Thr Gln Gln Pro Arg His Thr Tyr Tyr Glu Asn Gln Phe Cys
 1775 1780 1785
 Val Ser Glu Lys Pro Leu Asp Thr Cys Met Pro Leu Ile Cys His
 1790 1795 1800
 Ala Thr Glu Ser Tyr Thr Ile Asp Val Asn Phe Tyr Cys Val Pro
 1805 1810 1815
 Leu Gly Pro Ala Ala Asn His Tyr Met Lys Leu Val Lys Lys Gly
 1820 1825 1830
 Ile Leu Pro Asp Leu Ser Arg Asn Arg Asn Gly Lys Arg Val Val
 1835 1840 1845
) Leu Pro Val Glu Ile Pro Ile Gln Cys Glu Pro Val Leu Asn
 1850 1855 1860

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 <211> 2587
 <212> PRT
 <213> Marsupinaeus japonicus

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 Leu Ala Ala Pro Trp Gly Ala Asp Leu Pro Arg Cys Ser Thr Glu Cys
 20 25 30
 Pro Ile Ser Gly Ser Pro Lys Leu Ala Tyr Gln Pro Glu Lys Thr Tyr
 35 40 45

Thr Tyr Gln Tyr Ser Gly Lys Ser Arg Val Gln Leu Lys Gly Val Asp
 50 55 60
 Asp Gly Val Ser Glu Thr Glu Trp Ala Ala Arg Val Asp Leu Thr Trp
 65 70 75 80
 Ile Ser Pro Cys Asp Val Ala Ile Ser Phe Asn Asn Met Lys Met Asp
 85 90 95
 Gly Ala Arg Gly Pro Ile Ala Ala Arg Thr Leu Glu Arg His Pro Leu
 100 105 110
 Val Val Ala Val Val Asp Gly Arg Val Gln His Val Cys Ala His Pro
 115 120 125
 Asp Asp Glu Pro Trp Ala Ile Asn Leu Lys Lys Gly Val Ala Ser Ala
 130 135 140
 Phe Gln Asn Ser Ile Pro Ser Leu Ser Thr Val Ser Ser Gly Met Thr
 145 150 155 160
 Val Thr Glu Thr Asp Val Val Gly Lys Cys Pro Thr Thr Tyr Gln Ile
 165 170 175
 Glu Thr Glu Gly Glu Lys Val Ile Val Val Lys Glu Lys Asn His Arg
 180 185 190
 His Cys Gln Gln Arg Tyr Pro Thr Pro Ala Glu Thr Pro Ala Pro Trp
 195 200 205
 Leu Lys Ala Pro Leu Pro Ile Glu Glu Ser Lys Ser Glu Cys Lys Gln
 210 215 220
 Glu Ile Thr Asn Gly Ile Tyr Thr Ser Ile Met Cys His Asp Lys Asn
 225 230 235 240
 Ile Val Arg Pro Ala Ile Gly Ile Tyr Lys Tyr Val Glu Ala Asn Gln
 245 250 255
 Glu Ser Thr Leu His Phe Ile Ser Glu Thr Thr Asp Thr Ser Ala Ile
 260 265 270
 Thr Ala Ile Pro Arg Gly Glu Met His Ile Glu Ser Leu Leu Tyr Asn
 275 280 285
 His Glu Thr Met Lys Asp Pro Glu Leu Ala Pro Glu Leu Asp Gln Leu
 290 295 300
 Met Lys Glu Ile Cys Glu Lys Thr Lys Asp Thr Val Glu Ala Glu Ala
 305 310 315 320
 Ala Ala Leu Val Ala Lys Ala Leu His Leu Leu Arg Arg Val Pro Glu
 325 330 335

Thr Val Val Val Glu Ile Ala Gln Lys Val Arg Gln Gly His Tyr Cys
 340 345 350

Ser Asp Ser Ala Lys Leu Glu Ser Ile Phe Leu Asp Ala Val Ala Phe
 355 360 365

Leu His Glu Ser Gly Ala Val Lys Val Met Val Gln Glu Ile Leu Asn
 370 375 380

Gly Arg Ala Thr Gly Gly Arg Leu Ala Leu Tyr Thr Ala Ala Leu Tyr
 385 390 395 400

Leu Thr Pro Arg Pro Asn Ile Glu Ala Val Lys Ala Leu Thr Pro Leu
 405 410 415

Phe Glu Ser Pro Arg Pro Met Pro Ser Leu Leu Leu Ala Ala Ala Ser
 420 425 430

Met Val Asn His Tyr Cys Arg His Thr Pro His Cys His Gln Glu Ala
 435 440 445

Pro Val Glu Arg Ile Ala Glu Ile Leu Ala Ala Lys Val Glu Gly His
 450 455 460

Cys Ser Pro Ser Ile Gly Val Glu Glu Lys Glu Glu Ala Leu Ala Ile
 465 470 475 480

Phe Lys Ala Leu Gly Asn Met Gly Val Val Thr Pro Ala Val Thr Arg
 485 490 495

Ala Ala Ala Gln Cys Ile Glu Lys Glu Gly Leu Glu Thr Ser Ile Arg
 500 505 510

Val Ala Ala Ala Gln Ala Phe Arg Gln Ala Asn Cys Asp Arg Pro Ala
 515 520 525

Val Gln Lys Leu Val Asp Ile Ala Thr Arg Pro Thr Phe Glu Thr Glu
 530 535 540

Val Arg Ile Ala Ser Tyr Leu Ala Ala Ile Arg Cys Ala Glu Lys Glu
 545 550 555 560

His Leu Glu Gln Ile Ile Glu Lys Ile Ser Glu Glu Glu Asn Thr Gln
 565 570 575

Val Arg Gly Phe Val Leu Gly His Leu Ile Asn Ile Gln Glu Ser Thr
 580 585 590

Cys Pro Thr Lys Glu Asn Leu Lys Tyr Leu Leu Thr Asn Val Val Ile
 595 600 605

Pro Thr Asp Phe Glu Lys Asp Phe Arg Lys Phe Ser Arg Asn Val Glu
 610 615 620
 Met Ser Tyr His Ala Pro Ala Phe Gly Met Gly Ala Asp Leu Glu Ser
 625 630 635 640
 Asn Ile Ile Tyr Ala Pro Gly Ser Phe Ile Pro Arg Ala Val Asn Leu
 645 650 655
 Asn Met Lys Ala Ala Val Asp Glu Thr His Met Asp Leu Ala Glu Ile
 660 665 670
 Gly Ala Arg Phe Glu Gly Ile Asp Ser Ile Ile Glu Glu Leu Phe Gly
 675 680 685
 Pro Glu Gly Tyr Leu Arg Lys Ala Thr Phe Gly Lys Ile Met Gln Asp
 690 695 700
 Ile Thr Gly Phe Ala Glu Glu Lys Gly Leu Lys Val Met Glu His Ile
 705 710 715 720
 Lys Gln Thr Leu Arg Thr Lys Arg Ser Ile Asp Ser Ser Val Ile Ser
 725 730 735
 Asp Phe Phe Gly Lys Leu Tyr Gly Glu Gly Arg Ser His Thr His Ala
 740 745 750
 Glu Val Phe Ala Arg Ile Met Gly His Glu Ile Thr Tyr Ala Asp Val
 755 760 765
 Ala Glu Ser Leu Lys Gly Val Thr Ala Asp Thr Leu Ile Glu Thr Phe
 770 775 780
 Phe Ser Phe Phe Glu Glu Ser Leu Glu Gln Met Lys Gly Leu Asn Leu
 785 790 795 800
 Asn Thr Ala Arg Thr Ala Gln Leu Tyr Met Asp Tyr Ser Leu Pro Thr
 805 810 815
 Ile Gln Gly Thr Pro Leu Lys Leu Lys Leu Ala Gly Thr Ala Val Ala
 820 825 830
 Gly Leu Lys Met Glu Gly Asp Phe Asn Ile Ala Gln Ile Leu Ser Asp
 835 840 845
 Pro Gly Asn Leu Gln Thr Gly Ile Lys Leu Phe Pro Ala Leu Ser Val
 850 855 860
 Gln Ala Thr Gly Phe Val Gly Phe Glu Cys Arg Leu Thr Arg Val Gly
 865 870 875 880
 Ile Glu Met Glu Asn Thr Ile Ser Ser Ala Thr Gly Ala Ser Ile Asn
 885 890 895

Ile Arg Thr Thr Glu Asn Lys Lys Ile Gln Met Glu Leu Glu Ile Pro
 900 905 910
 Glu Lys Met Glu Leu Leu Asn Ile Lys Ala Glu Thr Tyr Leu Val Lys
 915 920 925
 Ala Val Gly Lys Lys Leu Thr Lys Ile Thr Pro Pro Thr Val Arg Asp
 930 935 940
 Val Arg Val Thr His Ala Ala Cys Leu Asn Ala Val Glu Pro Val Leu
 945 950 955 960
 Gly Ile Lys Val Cys Tyr Asn Ile Asn Met Pro Asp Val Phe Arg Ala
 965 970 975
 Asn Gly Leu Pro Leu Gly Glu Pro Ala Ile Ala Lys Leu Tyr Ile Glu
 980 985 990
 Lys Ala Asp Pro Ser Met Arg Gly Tyr Leu Met Thr Ala Ala Ile Lys
 995 1000 1005
 Asn Lys Lys Gly Asn Lys Phe Ile Lys Leu Asn Val Glu Ala Ala
 1010 1015 1020
 Gly Ala Thr Thr Pro Arg Arg Ala Glu Met Thr Leu Ser Tyr Thr
 1025 1030 1035
 Lys Glu Glu Gly Ser His Ile Val Ser Ala Lys Leu Asp Ser Ser
 1040 1045 1050
 Ser Ile Ala Ala Gly Val Trp Ala Thr Leu Thr Asn Glu Glu Gly
 1055 1060 1065
 His Lys Ala Met Glu Thr Tyr Val Lys Phe Asp Tyr Gly Gln Ile
 1070 1075 1080
 Ala Ile Ser Arg Gly Ile Lys Leu Asp Met Ile Val Lys Glu Glu
 1085 1090 1095
 Ser Ala Gly Lys Glu Phe Glu Val Asn Val Phe Ser Gly Arg Ser
 1100 1105 1110
 Arg Arg Phe Thr Pro Glu Ser His Ile Val Glu Ala Lys Phe Ile
 1115 1120 1125
 Lys Lys Thr Asn Gly Pro Glu Val Asn Val Asp Val Ile Cys Arg
 1130 1135 1140
 Thr Arg Asn Ala Leu Ala Gln Tyr Phe Asp Leu Asn Ile Glu Val
 1145 1150 1155

Gly Ala Asp Phe Met Glu Phe Ser Pro Glu Gly Val Tyr Pro Ala
 1160 1165 1170
 Arg Tyr Ile Pro Lys Val Ser Ile Leu Leu Pro Val Ala Leu Arg
 1175 1180 1185
 Lys Met Glu Val His Ala Asn Thr Val Ala Trp Lys Leu Ala Ser
 1190 1195 1200
 Tyr Ile Arg Glu Gly Ser Gln Ser Gly Glu Ser Arg Glu Leu Ile
 1205 1210 1215
 Ser Ala Phe Lys Leu Ser Lys Gly Arg Asn Asp Ile Ile Tyr Val
 1220 1225 1230
 Gln Ala Thr His Lys Ile Glu Gly Thr Leu Pro Gln Asn Ile Val
 1235 1240 1245
 Ile Glu Asn Glu Ala Thr Val Glu Val Gly Arg Ser Ser Tyr Arg
 1250 1255 1260
 Ala Met Tyr Asp Ile Phe Tyr His Pro Glu Lys Met Gly Ala Ser
 1265 1270 1275
 Val Glu Val Phe Arg Thr Ala Gly Asn Glu Lys Val Ala Glu Met
 1280 1285 1290
 Glu Ala Ile Tyr Glu Asn Thr Gly Glu Lys Tyr Tyr Thr Lys Phe
 1295 1300 1305
 Leu Val Glu Ala Pro Gly Tyr Ile Arg Pro Val Arg Ile Glu Ala
 1310 1315 1320
 Thr Ala Glu Glu Glu Thr Gly Gly Arg Tyr Ala Leu Glu Ser Ala
 1325 1330 1335
 Ile Lys Tyr Gly Glu Arg Thr Val Phe Glu Val Thr Gly Pro Val
 1340 1345 1350
 Met Ala Arg Phe Thr Ser Lys Thr Ala Lys Leu Gln Ala Asn Ile
 1355 1360 1365
 Lys Leu Ser Ala Met Ala Ser Glu Pro Tyr Ile Ile Gly Ala Asn
 1370 1375 1380
 Phe Val Phe Gly Asn Lys Lys Gln Met Ile Ala Met Glu Ile Lys
 1385 1390 1395
 Glu Arg Glu Glu Pro Val Phe Gly Val Glu Trp Lys Met Val Gln
 1400 1405 1410
 Glu Ser Ala Glu Lys Thr Thr Leu Ser Ile Ala Phe Val Leu Pro
 1415 1420 1425

Ala Leu Ile Glu Asn Lys Val Asp Ala Val Ile Thr Glu Asp Leu
1430 1435 1440

Val His Val Ser Phe Asn Asn Leu Val Leu Pro Lys Thr Ser Tyr
1445 1450 1455

Arg Arg Arg Val Lys Gly Phe Ala Asp Val Asn Ile Gly Glu Lys
1460 1465 1470

Arg Ala Asn Val Glu Phe Ser Trp Asp Ala Asp Lys Ser Pro Glu
1475 1480 1485

Lys Lys Leu Val Val Asp Ala Ser Leu Ile Ser Ser Pro Ser Asn
1490 1495 1500

Pro Gly His Ala Glu Ile His Gly Asn Ile Val Ile Ala Gly Glu
1505 1510 1515

Pro Tyr His Met Lys Leu Ile Leu Thr Ala Thr Asn Leu Leu Glu
1520 1525 1530

Tyr Met Glu Gly Glu Asn Gly Phe Lys Leu Leu Leu Thr Thr Pro
1535 1540 1545

Ser Gln Lys Thr Ile Val Leu Gly Ala Ser Cys Asp Val Gln Leu
1550 1555 1560

Glu Gly Thr Thr Thr Lys Val Val Ser Val Ile Glu Tyr Lys Asn
1565 1570 1575

Met Glu Asn Lys Glu Tyr Lys Tyr Thr Ser Val Ile Ala Leu Glu
1580 1585 1590

Lys Leu Gly Gly Pro Tyr Asn Tyr Val Val Lys Ala Lys Val Ile
1595 1600 1605

Tyr Lys Gln Pro Glu Thr Gln Glu Ile Met Leu Glu Thr Glu Val
1610 1615 1620

Lys His Gln Trp Thr Pro Glu Glu His Leu Val Ala Phe Lys Val
1625 1630 1635

Gly Ala Lys Ala Pro Val Leu Lys Met Pro Leu Met Ile Ala Phe
1640 1645 1650

Ser Ile His Asn Thr Arg Gly Ser Phe Val Gly Phe Cys Lys Ile
1655 1660 1665

Glu Arg Asn Thr Pro Ser Asn Val Phe Glu Trp Lys Ile Gln Met
1670 1675 1680

Thr Pro Glu Gly Gly Ile Glu Val Val Glu Ala Gly Leu Asp Ile
 1685 1690 1695
 Lys Ala Ile Asn Glu Val Leu Lys Ile Val His Ala Val Val Thr
 1700 1705 1710
 Phe Glu Glu Glu Gly Tyr Gln Ala Tyr Gly Gln Glu Thr Ala Lys
 1715 1720 1725
 Tyr Gln Tyr Arg Phe Thr Arg Pro Ser Pro Thr Thr Tyr Ile Met
 1730 1735 1740
 Gln Met Arg Thr Pro Thr Arg Thr Ile Glu Gly Arg Ala Lys Leu
 1745 1750 1755
 Ser Pro Arg Glu Ser Gly Ile Lys Phe Tyr Pro Asn Lys Gly Lys
 1760 1765 1770
 Ala Glu Ala Lys Tyr Glu Val Gly Tyr Lys Ala Asn His Gln Gly
 1775 1780 1785
 Ser Trp Gly Gln His Ala Ser Asn Ile Glu Val Arg Met Asn His
 1790 1795 1800
 Pro Thr Leu Pro Lys Pro Ile Met Val Ala Ala His Tyr Thr Ala
 1805 1810 1815
 Ile Gly Glu Thr Ile Lys Gly Thr Ile Glu Leu Asp Ile Phe Pro
 1820 1825 1830
 Glu Glu Glu Asn Lys Ile Thr Gly Thr Leu Glu Thr Gln Arg Ile
 1835 1840 1845
 Ser Glu Asn Ala Ile Arg Val Glu Val Phe Leu Thr Gly Lys Ile
 1850 1855 1860
 Leu Gln Val Asn Pro Lys Ala Ile Val Thr Val Ala Tyr Ala Pro
 1865 1870 1875
 Glu Thr Phe Ala Leu Asp Val Val Phe His Lys Thr Pro Ser Thr
 1880 1885 1890
 Ala Pro Val Phe Ala Leu Ala Ala Lys Tyr Asp Lys Thr Ser Ala
 1895 1900 1905
 His Asn Ala Ala Ala Thr Phe Thr Val Glu Met Glu Gln Arg Pro
 1910 1915 1920
 Val Phe Glu Ile Thr Ala Val Ala Glu Pro Glu Glu Glu Val Pro
 1925 1930 1935
 Cys Asn Gly Ile Arg Ile Lys Ala Ile Ala Asn Ala Pro Ala Phe
 1940 1945 1950

Gly Lys Tyr Asn Ile Phe Ser Lys Met Cys Lys Pro Ala Phe Ile
 1955 1960 1965

Glu Leu Thr Thr Met Arg His Gly Gly Glu Lys Glu Tyr Thr Ala
 1970 1975 1980

Arg Leu Gly Leu Arg Tyr Pro Asp Thr Ala Glu Ala Gly Val Tyr
 1985 1990 1995

Val Ala Ser Gly Arg Ala Glu Glu Ile Arg Gly Val Ala Val Ala
 2000 2005 2010

Ala Val Lys Leu Ala Ser Pro Thr Met Leu Lys Val Glu Met Ala
 2015 2020 2025

Tyr Gly Pro Glu Glu Ala Gln Val Leu Met Asn Glu Met Thr Glu
 2030 2035 2040

Glu Tyr Glu Lys Ala Ala Val Leu Phe Lys Ser Val Val Met Glu
 2045 2050 2055

Val Val His Phe Leu Glu Glu Glu Ala Ser Ala Lys Gly Ile His
 2060 2065 2070

Phe Pro Ser Ser Gln Leu Val Thr Leu Leu Gly Val Ala Lys Glu
 2075 2080 2085

Glu Ile Glu Glu Ile Tyr Arg Asp Ile Leu Ser Asp Ala Arg Ile
 2090 2095 2100

Phe Asp Thr Glu Ile Ile Arg Asp Ile Leu Ala Ser Pro Val Val
 2105 2110 2115

Ser Phe Val Pro Arg Val Tyr Phe Gly Val Trp Ser Glu Ile Val
 2120 2125 2130

Leu Leu Gln His Gln Leu Ser Val Asn Ile Ile Gln Ala Ile Glu
 2135 2140 2145

Arg Phe Gln Gly Glu Phe Glu Gly Ile Thr Glu Ile Ile Met Glu
 2150 2155 2160

Ile Val Met Glu Ala Thr Arg Met Ala Glu Thr Gly Glu Val Pro
 2165 2170 2175

Lys Val Leu Leu Asp Val Leu Glu Gln Ile Arg Ala Ser Lys Val
 2180 2185 2190

Phe Arg Ile Val Lys Arg Glu Val Tyr Glu Ile Leu Glu Glu Tyr
 2195 2200 2205

Pro Glu Glu Tyr Glu Ala Ile Thr His Val Val Gly Asn Val Met
2210 2215 2220

Ala Met Leu Glu Arg Asp Val Glu Ile Val Arg Val Gly Leu Met
2225 2230 2235

Lys Met Pro Ala Val Gln Arg Ile Ile Asp Tyr Ile Met Asn His
2240 2245 2250

Phe His Ser Lys Gln Val Phe Ala Val Glu Ala Glu Arg Val Val
2255 2260 2265

Ser Leu Ile Leu Ser Glu Leu Leu Tyr Val Ser Ile Glu Arg Glu
2270 2275 2280

Gly Asn Gly Ile Glu Val Gln Ile Pro Leu His Arg Pro Leu Tyr
2285 2290 2295

Ser Leu Thr Gln Val Ala Gln Glu Ala Val Pro Asn Pro Ile Thr
2300 2305 2310

Met Leu Glu Asn Leu Ile Phe Ala Tyr Leu Glu Tyr Ile Pro Ile
2315 2320 2325

Pro Val Glu His Ala Ile Trp Ala Tyr Tyr Asn Phe Ile Pro Arg
2330 2335 2340

Tyr Ile Thr Asp Val Leu Pro Pro Tyr Pro Arg Thr Ala Met Val
2345 2350 2355

Val Gly Gly Ser Glu Ile Leu Thr Phe Asp Gly Leu Val Val Arg
2360 2365 2370

Ala Pro Arg Ser Pro Cys Lys Val Leu Leu Ala Ala His Gly Ser
2375 2380 2385

His Arg Leu Met Met Ser His Pro Gln Pro Ser Ala Pro Pro Gln
2390 2395 2400

Leu Glu Leu Asn Thr Pro Ala Ala Ser Val Val Ile Lys Pro Asp
2405 2410 2415

Phe Glu Val Leu Val Asn Gly Arg Pro Leu Thr Gly Ser Gln Gln
2420 2425 2430

Thr Ile Gly Asn Ile Arg Ile Val Asn Ala Ala Lys His Ile Glu
2435 2440 2445

Val Gly Cys Pro Leu Met Lys Val Val Val Ala Lys Thr Gly Gln
2450 2455 2460

Val Val Ala Val Glu Ala Ser Gly Trp Thr Tyr Gly Arg Val Ala
2465 2470 2475

Gly Leu Leu Gly Pro Asn Thr Gly Glu Ile Ala Asp Asp Arg Leu
2480 2485 2490

Met Pro Thr Gly Val Gln Ala Ser Ser Pro Arg Glu Leu Val Ser
2495 2500 2505

Ala Trp Gln Glu Asp Gln Gly Cys Ser Thr Pro Glu Val Pro Arg
2510 2515 2520

Ser Glu Thr Thr Val Ala Arg Leu Ile Gln Cys Gln Thr Leu Leu
2525 2530 2535

Gly Ile Arg Ser Arg Cys Asn Pro Val Val Gln Pro Gln Pro Phe
2540 2545 2550

Ile Asn Met Cys His Ala Ala Arg Asn Ala Cys Asp Ala Ala Gln
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Ala Tyr Arg Thr Ile Cys Ala Leu Arg Gly Val Glu Glu Met Arg
2570 2575 2580

Pro Trp Ala Cys
2585

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<212> PRT
<213> Caenorhabditis elegans

<400> 12

Met Lys Ser Ile Ile Ile Ala Ser Leu Val Ala Leu Ala Ile Ala Ala
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Ser Pro Ala Leu Asp Arg Thr Phe Ser Pro Lys Ser Glu Tyr Val Tyr
20 25 30

Lys Phe Asp Gly Leu Leu Leu Ser Gly Leu Pro Thr Arg Ser Ser Asp
35 40 45

Ala Ser Gln Thr Leu Ile Ser Cys Arg Thr Arg Leu Gln Ala Val Asp
50 55 60

Asp Arg Tyr Ile His Leu Gln Leu Thr Asp Ile Gln Tyr Ser Ala Ser
65 70 75 80

His Ile Pro Gln Ser Glu Gln Trp Pro Lys Ile Glu Ser Leu Glu Gln
85 90 95

Arg Glu Leu Ser Asp Glu Phe Lys Glu Leu Leu Glu Leu Pro Phe Arg
100 105 110

Ala Gln Ile Arg Asn Gly Leu Ile Ser Glu Ile Gln Phe Ser Ser Glu

115	120	125
Asp Ala Glu Trp Ser Lys Asn Ala Lys Arg Ser Ile Leu Asn Leu Phe 130 135 140		
Ser Leu Arg Lys Ser Ala Pro Val Asp Glu Met Asn Gln Asp Gln Lys 145 150 155 160		
Asp Met Glu Ser Asp Lys Asp Ser Val Phe Phe Asn Val His Glu Lys 165 170 175		
Thr Met Glu Gly Asp Cys Arg Ser Arg Leu His Ile Val Gln Glu Gly 180 185 190		
Glu Lys Thr Ile Tyr Thr Lys Ser Val Asn Phe Asp Lys Cys Ile Thr 195 200 205		
Arg Pro Glu Thr Ala Tyr Gly Leu Arg Phe Gly Ser Glu Cys Lys Glu 210 215 220		
Cys Glu Lys Glu Gly Gln Phe Val Lys Pro Gln Thr Val Tyr Thr Tyr 225 230 235 240		
Thr Phe Lys Asn Glu Lys Leu Gln Glu Ser Glu Val His Ser Val Tyr 245 250 255		
Thr Leu Asn Val Asn Gly Gln Glu Val Val Lys Ser Glu Thr Arg Ala 260 265 270		
Lys Val Thr Phe Val Glu Glu Ser Lys Ile Asn Arg Glu Ile Lys Lys 275 280 285		
Val Ser Gly Pro Lys Glu Glu Ile Val Tyr Ser Met Glu Asn Glu Lys 290 295 300		
Leu Ile Glu Gln Phe Tyr Gln Gln Gly Asp Lys Ala Glu Val Asn Pro 305 310 315 320		
Phe Lys Ala Ile Glu Met Glu Gln Lys Val Glu Gln Leu Gln Glu Ile 325 330 335		
Phe Arg Gln Ile Gln Glu His Glu Gln Asn Thr Pro Glu Thr Val His 340 345 350		
Leu Ile Ala Arg Ala Val Arg Met Phe Arg Met Cys Thr Ile Glu Glu 355 360 365		
Leu Lys Lys Val His Thr Thr Ile Tyr Thr Lys Ala Glu Lys Lys Val 370 375 380		
Gln Leu Val Ile Glu Thr Ser Ile Ala Val Ala Gly Thr Lys Asn Thr 385 390 395 400		

Ile Gln His Leu Ile His His Phe Glu Lys Lys Ser Ile Thr Pro Leu
 405 410 415
 Arg Ala Ala Glu Leu Leu Lys Ser Val Gln Glu Thr Leu Tyr Pro Ser
 420 425 430
 Glu His Ile Ala Asp Leu Leu Ile Gln Leu Ala Gln Ser Pro Leu Ser
 435 440 445
 Glu Lys Tyr Glu Pro Leu Arg Gln Ser Ala Trp Leu Ala Ala Gly Ser
 450 455 460
 Val Val Arg Gly Phe Ala Ser Lys Thr Gln Asp Leu Pro Leu Ile Arg
 465 470 475 480
 Pro Ala Ser Arg Gln Thr Lys Glu Lys Tyr Val Arg Val Phe Met Gln
 485 490 495
 His Phe Arg Asn Ala Asp Ser Thr Tyr Glu Lys Val Leu Ala Leu Lys
 500 505 510
 Thr Leu Gly Asn Ala Gly Ile Asp Leu Ser Val Tyr Glu Leu Val Gln
 515 520 525
 Ile Ile Gln Asp Pro Arg Gln Pro Leu Ser Ile Arg Thr Glu Ala Val
 530 535 540
 Asp Ala Leu Arg Leu Leu Lys Asp Val Met Pro Arg Lys Ile Gln Lys
 545 550 555 560
 Val Leu Leu Pro Val Tyr Lys Asn Arg Gln Asn Lys Pro Glu Leu Arg
 565 570 575
 Met Ala Ala Leu Trp Arg Met Met His Thr Ile Pro Glu Glu Pro Val
 580 585 590
 Leu Ala His Ile Val Ser Gln Met Glu Asn Glu Ser Asn Gln His Val
 595 600 605
 Ala Ala Phe Thr Tyr His Val Leu Arg Gln Phe Tyr Lys Ser Thr Asn
 610 615 620
 Pro Cys Tyr Gln Gln Leu Ala Val Arg Cys Ser Lys Ile Leu Leu Phe
 625 630 635 640
 Thr Arg Tyr Gln Pro Gln Glu Gln Met Leu Ser Thr Tyr Ser Gln Leu
 645 650 655
 Pro Leu Phe Asn Ser Glu Trp Leu Ser Gly Val Gln Phe Asp Phe Ala
 660 665 670
 Thr Ile Phe Glu Lys Asn Ala Phe Leu Pro Lys Glu Val Gln Ala Ser

675 680 685
 Leu Glu Thr Val Phe Gly Gly Asn Trp Asn Lys Tyr Phe Ala Gln Val
 690 695 700
 Gly Phe Ser Gln Gln Asn Phe Glu Gln Val Ile Leu Lys Thr Leu Glu
 705 710 715 720
 Lys Leu Ser Leu Tyr Gly Lys Gln Ser Asp Glu Leu Arg Ser Arg Arg
 725 730 735
 Val Gln Ser Gly Ile Gln Met Leu Gln Glu Ile Val Lys Lys Met Asn
 740 745 750
 Ile Arg Pro Arg Val Gln Gln Thr Asp Ser Gln Asn Ala His Ala Val
 755 760 765
 Phe Tyr Leu Arg Tyr Lys Glu Met Asp Tyr Ile Val Leu Pro Ile Asp
 770 775 780
 Met Glu Thr Ile Asp Thr Leu Val Glu Lys Tyr Val Arg Asn Gly Glu
 785 790 795 800
 Phe Asp Ile Lys Ser Leu Leu Thr Phe Leu Thr Asn Asp Ser Lys Phe
 805 810 815
 Glu Leu His Arg Ala Leu Phe Phe Tyr Glu Ala Glu Arg Arg Ile Pro
 820 825 830
 Thr Thr Ile Gly Met Pro Leu Thr Ile Ser Gly Lys Met Pro Thr Ile
 835 840 845
 Leu Ser Ile Asn Gly Lys Val Ser Ile Glu Leu Glu Lys Leu Gly Ala
 850 855 860
 Arg Leu Val Leu Asp Ile Val Pro Thr Val Ala Thr Thr His Val Thr
 865 870 875 880
 Glu Met Pro Leu Leu Tyr Pro Val Ile Glu Gln Gly Val Lys Ser Leu
 885 890 895
 Gln Ser Ala Arg Leu His Thr Pro Leu Arg Phe Glu Ser Thr Val Glu
 900 905 910
 Leu Lys Lys Asn Thr Leu Glu Ile Thr His Lys Phe Val Val Pro Glu
 915 920 925
 Asn Lys Lys Thr Thr Val Ser Val His Thr Arg Pro Val Ala Phe Ile
 930 935 940
 Arg Val Pro Lys Asn Gln Asp Ser Glu Tyr Val Glu Ala Glu Glu Lys
 945 950 955 960

Thr Ile Ser His Ser Gln Tyr Gln Met Ser Thr Glu Glu Ile Asp Arg
965 970 975

Gln Tyr Glu Thr Phe Gly Leu Arg Ile Asn Ala Gln Gly Asn Val Leu
980 985 990

Ser Gln Trp Thr Leu Pro Met Val Leu Met Thr Glu Gln Asp Phe Glu
995 1000 1005

Tyr Thr Leu Glu Asn Lys Asn Arg Pro Val Glu Phe Thr Ala Arg
1010 1015 1020

Val Thr Ile Gly Asn Leu Glu Lys Thr Asp Leu Ser Glu Ile Lys
1025 1030 1035

Phe Asp Lys Ile Phe Glu Lys Glu Phe Asp Leu Glu Asn Asn Glu
1040 1045 1050

Ser Glu Asn Arg Arg Gln Tyr Phe His Lys Met Ile Arg Glu Ile
1055 1060 1065

Gln Ser Glu Gln Gly Phe Lys Asn Leu Ile Thr Leu Lys Leu Glu
1070 1075 1080

Ala Pro Gln Gln Met Tyr Trp Asn Thr Glu Leu Arg Thr Val Cys
1085 1090 1095

Asp Lys Trp Ile Arg Met Cys Lys Val Glu Met Asp Ala Arg Arg
1100 1105 1110

Ser Pro Met Glu His Glu Asn Lys Glu Trp Thr Leu Arg Thr Glu
1115 1120 1125

Leu Leu Ala Ala Arg Pro Gln Met Pro Ser Ser Leu Arg Gln Leu
1130 1135 1140

Arg Glu Gln Pro His Arg Glu Val Gln Leu Ala Phe Asn Ala Lys
1145 1150 1155

Trp Gly Ser Ser Lys Lys Ser Glu Ile Thr Val Asn Ala Gln Leu
1160 1165 1170

Glu Gln Ser Thr Glu Gln Lys Lys Phe Ile Arg Asn Ile Glu Arg
1175 1180 1185

Glu Tyr Lys Gly Ile Pro Glu Tyr Glu Leu Leu Ile Lys Ala Ala
1190 1195 1200

Arg Leu Asn Gln Val Asn Val Val Ser Glu Tyr Lys Leu Thr Pro
1205 1210 1215

Gln Ser Glu Tyr Thr Phe Ser Arg Ile Phe Asp Leu Ile Lys Ala

1220	1225	1230
Tyr Asn Phe Trp Thr Val	Ser Glu Lys Arg Val	Gln Asn Glu Asn
1235	1240	1245
Arg Arg Val Val Leu Gln	Leu Ser Val Glu Pro	Leu Ser Arg Gln
1250	1255	1260
Ser His Glu His Asp His	Gln Thr Pro Glu Gln	Glu Val Glu Leu
1265	1270	1275
Lys Asn Ala Arg Ile Pro	Arg Val Val Leu Pro	Thr Ile Ala Arg
1280	1285	1290
Ser Ala Met Phe Gln Gln	Thr Trp Glu Lys Thr	Gly Ala Thr Cys
1295	1300	1305
Lys Val Asp Gln Ser Glu	Val Ser Thr Phe His	Asn Val Ile Tyr
1310	1315	1320
Arg Ala Pro Leu Thr Thr	Cys Tyr Ser Leu Val	Ala Lys Asp Cys
1325	1330	1335
Ser Glu Gln Pro Arg Phe	Ala Val Leu Ala Lys	Lys Ile Asn Lys
1340	1345	1350
Asn Ser Glu Glu Leu Leu	Val Lys Val Val Arg	Arg Glu Glu Glu
1355	1360	1365
Ile Val Val Lys Lys Ser	Asp Asp Lys Phe Leu	Val Lys Val Asp
1370	1375	1380
Gly Lys Lys Val Asn Pro	Thr Glu Leu Glu Gln	Tyr Asn Ile Glu
1385	1390	1395
Ile Leu Gly Asp Asn Leu	Ile Val Ile Arg Leu	Pro Gln Gly Glu
1400	1405	1410
Val Arg Phe Asp Gly Tyr	Thr Val Lys Thr Asn	Met Pro Ser Val
1415	1420	1425
Ala Ser Gln Asn Gln Leu	Cys Gly Leu Cys Gly	Asn Asn Asp Gly
1430	1435	1440
Glu Arg Asp Asn Glu Phe	Met Thr Ala Asp Asn	Tyr Glu Thr Glu
1445	1450	1455
Asp Val Glu Glu Phe His	Arg Ser Tyr Leu Leu	Lys Asn Glu Glu
1460	1465	1470
Cys Glu Phe Glu Phe Asp	Arg Ile Ser Glu Lys	Lys Asn Tyr Arg
1475	1480	1485

Asn Lys Trp Asn Arg Glu Glu Lys Lys Ser Asp Tyr Glu Ser Ser
1490 1495 1500

Ser Asp Tyr Glu Ser Asn Tyr Asp Glu Lys Glu Thr Glu Glu Glu
1505 1510 1515

Leu Val Lys Lys Thr Leu Ile Lys Glu Phe Ser Asn Arg Val Cys
1520 1525 1530

Phe Ser Ile Glu Pro Val Ser Glu Cys Arg Arg Gly Leu Glu Ser
1535 1540 1545

Glu Lys Thr Ser Asn Lys Lys Ile Arg Phe Thr Cys Met Pro Arg
1550 1555 1560

His Arg Gln Glu Arg Ser Arg Phe Leu Gln Gly Ser Ser Glu Gln
1565 1570 1575

Thr Val Ala Glu Leu Val Asp Phe Pro Val Ser Phe Val Glu Ser
1580 1585 1590

Val Lys Ile Pro Thr Ala Cys Val Ala Tyr
1595 1600

<210> 13
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<212> PRT
<213> Oscheius tipulae

<400> 13

Met Arg Phe Ala Val Leu Leu Ala Leu Phe Gly Leu Ala Leu Ala Ala
1 5 10 15

Arg Gln Ser Ser Val Ser Glu Gln Tyr Tyr Arg Ser Gly Arg Glu Tyr
20 25 30

Arg Tyr Gln Phe Asn Gly His Leu Ser Ala Gly Leu Pro Ile Pro Gly
35 40 45

Glu Glu Asn Ser Ala Thr Arg Ile Gln Ser Leu Ile Arg Ile Gln Pro
50 55 60

Glu Asn Gly Asp Phe Met Arg Leu Gln Met Thr Lys Thr Arg Phe Ala
65 70 75 80

Thr Ser Glu Glu Asp Arg Val Leu Ser Phe Glu Asn Met Asn Glu Val
85 90 95

Pro Val Ser Glu Lys Val Glu Lys Val Leu Ser Leu Pro Ile Arg Phe
100 105 110

Ser Tyr Arg His Gly Met Val Gly Glu Ile Glu Phe Ser Thr Glu Glu
115 120 125

Gln Thr Trp Ser Ser Asn Ile Lys Lys Ala Val Val Asn Met Leu Gln
 130 135 140

Val Asn Leu Val Lys Lys Gly Met Ser Glu Lys Asn Glu Tyr Glu Thr
 145 150 155 160

Glu His Asp Asn Asp Phe Phe Leu Ser Asn Glu Arg Thr Leu Glu Gly
 165 170 175

Glu Cys Glu Val Ala Tyr Thr Lys Ile Glu Lys Ser Glu Lys Glu Gln
 180 185 190

Gln Trp Thr Lys Ser Ile Asn Phe Glu Lys Cys Ser Leu Arg Pro Glu
 195 200 205

Ile Val Tyr Gly Arg Arg Tyr Ala Glu Glu Cys Asn Glu Cys Arg Glu
 210 215 220

Arg Asp Glu Lys Phe Ser Ser Thr Val Phe Phe Tyr Asn Ile Thr Gly
 225 230 235 240

Thr Pro Glu Phe Leu Ile Asn Ser Val Glu Leu Gln Ser Lys His Met
 245 250 255

Phe Ala Pro Val Thr Glu Gln Lys Gln Leu Ile Thr Ala Arg Ile Thr
 260 265 270

Asn Arg Leu Glu Leu Val Tyr Ser Gly Glu Gln Lys Glu Gln Ile Glu
 275 280 285

Ala Val Arg Asn Ser Asp Lys Lys Glu Asn Leu Leu Tyr Asn Pro Glu
 290 295 300

His Glu Ile Ala Glu Glu Lys Phe Ala Gln Thr Gly Asp Glu Glu Val
 305 310 315 320

Ser Ser Ser Tyr Ser Gln Leu Arg Arg Ser Gly Arg Asn His Pro Ser
 325 330 335

Ala Ala Glu Pro Ser Leu Gln Ala Asp Arg Ala Asn Arg Ala Arg Glu
 340 345 350

Gln Pro Arg Pro Arg Lys Ile Leu Leu Val Asn Tyr Gln Pro Cys Ile
 355 360 365

Gln Ala Arg Leu Val Lys Ser Leu Arg Phe Ala Thr Glu Asp Asn Leu
 370 375 380

Ser Ser Ile Arg Ser Leu Val Ser Gln Lys Ser Glu Val Val Gln Ser
 385 390 395 400

Leu Tyr Trp Asp Ala Leu Ala Ile Ala Gly Thr Lys Val Thr Val Ser
 405 410 415
 His Leu Leu Glu Lys Ile Asn Asn Lys Glu Ile Ser Pro Met Lys Ala
 420 425 430
 Ser Gln Leu Met Lys Ile Leu Ala Glu Val Arg Ile Pro Ser Glu Gln
 435 440 445
 Ile Ala Gln Glu Leu His Arg Phe Cys Glu Ser Asp Ile Val Ser Arg
 450 455 460
 Ser Ala Val Leu Arg Gln Ser Cys Trp Leu Ser Tyr Gly Ser Val Leu
 465 470 475 480
 Asn Gly Val Cys Gly Gln Thr Lys Asn Val Tyr Gly Ser Glu Ile Thr
 485 490 495
 Glu Thr Arg Lys Gln Cys Thr Arg Gln Met Lys Glu Lys Tyr Ile Arg
 500 505 510
 Glu Leu Ile Glu Lys Met Asn Gln Ala Glu Ser Arg Tyr Glu Lys Val
 515 520 525
 Leu Phe Val Lys Ala Ile Ala Asn Ala Gly Ile Asp Thr Ser Val Val
 530 535 540
 Glu Leu Glu Lys Ile Ile Arg Asn Gln Glu Val Glu Lys Thr Val Arg
 545 550 555 560
 Met Gln Ala Ile Asp Ala Leu Arg Arg Leu Arg Leu Ser Met Pro Lys
 565 570 575
 Lys Ile Gln Asn Val Leu Met Pro Val Tyr Arg Asn His Lys Glu Thr
 580 585 590
 Pro Gly Ile Arg Ile Ser Ala Leu His Met Ile Met Gln Thr Gln Pro
 595 600 605
 Thr Ser Gly Val Leu Asp Met Ile Val Arg Gly Leu Glu Lys Glu Arg
 610 615 620
 Ser Gln Gln Val Arg Val Tyr Thr Trp Ser Thr Leu Lys Thr Leu Ser
 625 630 635 640
 Glu Ser Glu Asn Pro Ala Glu Lys Glu Ile Arg Arg Arg Val Ser Gln
 645 650 655
 Ser Leu Ala Ser Ile Pro Val Glu Glu Gln Lys Tyr Leu Glu Ser Lys
 660 665 670
 His Lys Thr Phe Asn Trp Phe Asn Met Gln Ser Gly Ala Thr Leu Asn
 675 680 685

Trp Ala Thr Ile Phe Ser Asn Asp Ser Val Leu Pro Lys Glu Ile Thr
690 695 700

Ala Ser Leu Glu Thr Val Phe Gly Gly Glu Trp Asn Lys Tyr Leu Ala
705 710 715 720

Gln Ile Gly Leu Tyr Gln Asn Asn Leu Asp Ser Val Leu Ser Lys Leu
725 730 735

Leu Gln Lys Val Glu Glu Thr Gly Leu Glu Gln Leu Val Val Arg Gly
740 745 750

Lys Arg Ser Ser Ser Phe Phe Arg Pro Ala Glu Met Leu Arg Ser Leu
755 760 765

Val Glu Ser Leu Arg Ile Ser His Arg Gln Val Pro Ala Met Ser Pro
770 775 780

Ile Ala Met Ile Tyr Leu Arg Tyr Lys Asp Gln Asp Tyr Ala Phe Leu
785 790 795 800

Pro Ile Asp Ile Asp Thr Leu Pro Glu Met Ile Arg Arg Val Ala Arg
805 810 815

Asp Gly Gln Leu Asp Leu Ser Glu Ile Glu Lys Val Leu Thr Gln Ala
820 825 830

Ala Arg Phe Thr Val Ala Gly Ser Ala Phe Phe His Glu Thr Val Arg
835 840 845

Lys Val Pro Ser Ala Leu Gly Met Pro Gln Val Met Thr Ser Lys Met
850 855 860

Pro Thr Val Ala Gln Met Asn Gly Glu Val Lys Phe Asp Leu Glu Pro
865 870 875 880

Leu Asn Ser Asp Lys Phe Thr Gly Leu Arg Leu Arg Val Lys Ala Glu
885 890 895

Pro His Val Ala Ser Thr His Val Cys Lys Leu Glu Leu Phe Thr Pro
900 905 910

Ile Gly Gly Gln Gly Ile Lys Leu Leu His Gly Gly Arg Ile Gln Ala
915 920 925

Pro Ile Asp Ser Glu Ile Glu Ile Asn Trp Glu Lys Lys Leu Ile Val
930 935 940

Lys Ala Thr Ile Lys Ser Pro Glu Gln Lys Arg His Ile Ala His Phe
945 950 955 960

Met Thr Arg Pro Val Leu Phe Ser Arg Glu Val Thr Met Asp Lys Gln
 965 970 975

Met Arg Gln Tyr Pro Glu Pro Arg Glu Lys Thr Ile Gln Leu Arg Glu
 980 985 990

Asn Arg Phe Pro Ile His Ala Phe Glu Arg Gln Tyr Phe Glu Gln Thr
 995 1000 1005

Gly Leu Lys Met Thr Val Ser Gly His Tyr Arg Arg Pro Phe Thr
 1010 1015 1020

Thr Ala Phe Thr Leu Gly Glu Ser Ile Met Met Ser Ser Ser Ser
 1025 1030 1035

Leu Pro Arg Met Leu Ser Leu Lys Glu Val Val Ala Tyr Met Ser
 1040 1045 1050

Phe Ser Gly Phe Glu Glu Thr Glu Met Asp Glu Pro Arg Leu Leu
 1055 1060 1065

Asn Arg Phe Tyr Glu Lys Glu Thr Glu Leu Phe Glu Thr Glu Lys
 1070 1075 1080

Asn Val Glu Tyr Glu Gln Glu Asp Lys Glu Pro Lys Ser Ser Gln
 1085 1090 1095

Leu Gln Ser Gln Ile Arg Lys Val Lys Ser Glu Gly Lys Ala Tyr
 1100 1105 1110

Lys His Arg Val His Met Lys Ile His Thr Val Gly Gly Pro Lys
 1115 1120 1125

Thr Gln Glu Ala Glu Cys Glu Ile Arg Ala Leu Cys Asp Glu Arg
 1130 1135 1140

Val Arg Phe Cys Arg Leu Asn Leu Asp Ala Ser Arg Ser Pro Ile
 1145 1150 1155

Gln Gly Glu Ser Arg Gln Trp Gln Leu Lys Ser Ser Ala Glu Trp
 1160 1165 1170

Leu Tyr Pro Glu Val Pro Ser Thr Met Lys Lys Met Leu Glu Ser
 1175 1180 1185

Arg Arg Glu Trp Asn Ala Met Trp Thr Gly Lys Trp Gly Ser Glu
 1190 1195 1200

Lys Gln Asn Glu Val Thr Ile Arg Val Gln Gly Glu Gln Ser Ser
 1205 1210 1215

Glu Gln Lys Phe Trp Met Lys Lys Ala Glu Arg Glu Gln Ser Pro
 1220 1225 1230

Leu Thr Ser Gly Gly Gln Ala Ser Arg Ala Ala Gln Leu Asn Gln
 1235 1240 1245
 Tyr Asn Ile His Ala Thr Tyr Glu Val Thr Pro Glu Thr Glu Phe
 1250 1255 1260
 Trp Met Glu Asn Val Tyr Ser Met Phe Lys Thr Tyr Tyr Phe Phe
 1265 1270 1275
 Ser Ala Glu Val Gln Pro Lys Gln Asn Lys Glu Asn Arg Ile Gln
 1280 1285 1290
 Cys Gln Ile Thr Leu Glu Pro Phe Thr Arg Gln Leu Phe Asn Val
 1295 1300 1305
 Thr Val Met Ser Pro Lys Glu Lys Leu Val Leu Glu Leu Glu Asn
 1310 1315 1320
 Gln Gln Thr Pro Phe Arg Leu Pro Ala Val Asn Ile Gly Arg Glu
 1325 1330 1335
 Phe Gly Arg Val Gln Ser Val Arg His Val Val Lys Ala Val Glu
 1340 1345 1350
 Arg Gln Thr Arg Pro Glu Cys Ile Val Lys Ser Lys Glu Ile Gln
 1355 1360 1365
 Thr Phe Asp Glu Val Phe Tyr Arg Thr Pro Val Met Glu Cys Phe
 1370 1375 1380
 Ser Val Leu Ala Lys Asp Cys Ser Glu Asn Pro Asp Phe Ala Val
 1385 1390 1395
 Leu Met Arg Lys Val Ser Lys Arg Gly Glu Glu Lys Met Trp Lys
 1400 1405 1410
 Val Ile Ser Arg Glu Asn Val Ile Glu Leu Glu Lys Lys Ser Glu
 1415 1420 1425
 Glu Met Ser Val Arg Val Asn Gly Lys Glu Ile Ser Glu Asp Lys
 1430 1435 1440
 Trp Glu Asp Phe Gly Ile Ser Gln Arg Gly Glu Glu Lys Phe Phe
 1445 1450 1455
 Ile Asp Ala Glu Lys Val Thr Val Glu Phe Asp Gly Phe Gln Ala
 1460 1465 1470
 Lys Ile Gln Met Ser Ser Leu Tyr Lys Asn Lys Gln Cys Gly Leu
 1475 1480 1485

Cys Gly His Tyr Asp Gly Glu Lys Thr Asn Glu Phe Arg Arg Ala
 1490 1495 1500
 Asp Asn Glu Glu Thr Asp Asp Ile Glu Glu Phe Ser Arg Ser Tyr
 1505 1510 1515
 Leu Ser Lys Asp Asp Glu Cys Glu Val Asp Glu Gln Glu Met Thr
 1520 1525 1530
 Asn Lys Arg Asn Tyr Lys Val Leu Arg Glu Glu Thr Ser Ser Ser
 1535 1540 1545
 Glu Glu Ile Ser Glu Ser Leu Ile Glu Leu Tyr Ser Glu Ala Phe
 1550 1555 1560
 Gln Ser Arg Glu Ala His His Arg Leu Gly Arg Arg Glu Asp Arg
 1565 1570 1575
 Gln Val Cys Phe Ser Gln Gln Ala Trp Asn Lys Cys Leu Lys Ser
 1580 1585 1590
 Lys Asp Asn Lys Thr Glu Thr Lys Asn Val His Phe Lys Cys Leu
 1595 1600 1605
 Thr Glu Thr Thr Arg Ser Pro Arg Ile Ser Ser Val Phe Ser Gln
 1610 1615 1620
 Ala Asp Ile Ser Glu Asn Leu Ser Asp Val Glu Gly Leu Pro Ser
 1625 1630 1635
 Leu Ala Glu Pro Ser Pro His Ser Arg Phe Leu Pro Cys Val Ile
 1640 1645 1650
 Pro Ser Leu Ser Leu Ser Gln
 1655 1660
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 <212> PRT
 <213> Fundulus heteroclitus
 <400> 14
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 Gln Val Ser Tyr Ala Pro Glu Phe Ala Pro Gly Lys Thr Tyr Glu Tyr
 20 25 30
 Lys Tyr Glu Gly Tyr Ile Leu Gly Gly Leu Pro Glu Glu Gly Leu Ala
 35 40 45
 Lys Ala Gly Val Lys Ile Gln Ser Lys Val Leu Ile Gly Ala Ala Gly
 50 55 60

Pro Asp Ser Tyr Ile Leu Lys Leu Glu Asp Pro Val Ile Ser Gly Tyr
 65 70 75 80
 Ser Gly Ile Trp Pro Lys Glu Val Phe His Pro Ala Thr Lys Leu Thr
 85 90 95
 Ser Ala Leu Ser Ala Gln Leu Leu Thr Pro Val Lys Phe Glu Tyr Ala
 100 105 110
 Asn Gly Val Ile Gly Lys Val Phe Ala Pro Pro Gly Ile Ser Thr Asn
 115 120 125
 Val Leu Asn Val Phe Arg Gly Leu Leu Asn Met Phe Gln Met Asn Ile
 130 135 140
 Lys Lys Thr Gln Asn Val Tyr Asp Leu Gln Glu Thr Gly Val Lys Gly
 145 150 155 160
 Val Cys Lys Thr His Tyr Ile Leu His Glu Asp Ser Lys Ala Asp Arg
 165 170 175
 Leu His Leu Thr Lys Thr Thr Asp Leu Asn His Cys Thr Asp Ser Ile
 180 185 190
 His Met Asp Val Gly Met Ala Gly Tyr Thr Glu Lys Cys Ala Glu Cys
 195 200 205
 Met Ala Arg Gly Lys Thr Leu Ser Gly Ala Ile Ser Val Asn Tyr Ile
 210 215 220
 Met Lys Pro Ser Ala Ser Gly Thr Leu Ile Leu Glu Ala Thr Ala Thr
 225 230 235 240
 Glu Leu Leu Gln Tyr Ser Pro Val Asn Ile Val Asn Gly Ala Val Gln
 245 250 255
 Met Glu Ala Lys Gln Thr Val Thr Phe Val Asp Ile Arg Lys Thr Pro
 260 265 270
 Leu Glu Pro Leu Lys Ala Asp Tyr Ile Pro Arg Gly Ser Leu Lys Tyr
 275 280 285
 Glu Leu Gly Thr Glu Phe Leu Gln Thr Pro Ile Gln Leu Leu Arg Ile
 290 295 300
 Thr Asn Val Glu Ala Gln Ile Val Glu Ser Leu Asn Asn Leu Val Ser
 305 310 315 320
 Leu Asn Met Gly His Ala His Glu Asp Ser Pro Leu Lys Phe Ile Glu
 325 330 335
 Leu Ile Gln Leu Leu Arg Val Ala Lys Tyr Glu Ser Ile Glu Ala Leu

340 345 350

Trp Ser Gln Phe Lys Thr Lys Ile Asp His Arg His Trp Leu Leu Ser
355 360 365

Ser Ile Pro Ala Ile Gly Thr His Val Ala Leu Lys Phe Ile Lys Glu
370 375 380

Lys Ile Val Ala Gly Glu Val Thr Ala Ala Glu Ala Ala Gln Ala Ile
385 390 395 400

Met Ser Ser Thr His Leu Val Lys Ala Asp Leu Glu Ala Ile Lys Leu
405 410 415

Gln Glu Gly Leu Ala Val Thr Pro Asn Ile Arg Glu Asn Ala Gly Leu
420 425 430

Arg Glu Leu Val Met Leu Gly Phe Gly Ile Met Val His Lys Tyr Cys
435 440 445

Val Glu Asn Pro Ser Cys Pro Ser Glu Leu Val Arg Pro Val His Asp
450 455 460

Ile Ile Ala Lys Ala Leu Glu Lys Arg Asp Asn Asp Glu Leu Ser Leu
465 470 475 480

Ala Leu Lys Val Leu Gly Asn Ala Gly His Pro Ser Ser Leu Lys Pro
485 490 495

Ile Met Lys Leu Leu Pro Gly Phe Gly Ser Ser Ala Ser Glu Leu Glu
500 505 510

Leu Arg Val His Ile Asp Ala Thr Leu Ala Leu Arg Lys Ile Gly Lys
515 520 525

Arg Glu Pro Lys Met Ile Gln Asp Val Ala Leu Gln Leu Phe Met Asp
530 535 540

Arg Thr Leu Asp Pro Glu Leu Arg Met Val Ala Val Val Val Leu Phe
545 550 555 560

Asp Thr Lys Leu Pro Met Gly Leu Ile Thr Thr Leu Ala Gln Ser Leu
565 570 575

Leu Lys Glu Pro Asn Leu Gln Val Leu Ser Phe Val Tyr Ser Tyr Met
580 585 590

Lys Ala Phe Thr Lys Thr Thr Thr Pro Asp His Ser Thr Val Ala Ala
595 600 605

Ala Cys Asn Val Ala Ile Arg Ile Leu Ser Pro Arg Phe Glu Arg Leu
610 615 620

Ser Tyr Arg Tyr Ser Arg Ala Phe His Tyr Asp His Tyr His Asn Pro
 625 630 635 640
 Trp Met Leu Gly Ala Ala Ala Ser Ala Phe Tyr Ile Asn Asp Ala Ala
 645 650 655
 Thr Val Leu Pro Lys Asn Ile Met Ala Lys Ala Arg Val Tyr Leu Ser
 660 665 670
 Gly Val Ser Val Asp Val Leu Glu Phe Gly Ala Arg Ala Glu Gly Val
 675 680 685
 Gln Glu Ala Leu Leu Lys Ala Arg Asp Val Pro Glu Ser Ala Asp Arg
 690 695 700
 Leu Thr Lys Met Lys Gln Ala Leu Lys Ala Leu Thr Glu Trp Arg Ala
 705 710 715 720
 Asn Pro Ser Arg Gln Pro Leu Gly Ser Leu Tyr Val Lys Val Leu Gly
 725 730 735
 Gln Asp Val Ala Phe Ala Asn Ile Asp Lys Glu Met Val Glu Lys Ile
 740 745 750
 Ile Glu Phe Ala Thr Gly Pro Glu Ile Arg Thr Arg Gly Lys Lys Ala
 755 760 765
 Leu Asp Ala Leu Leu Ser Gly Tyr Ser Met Lys Tyr Ser Lys Pro Met
 770 775 780
 Ser Ala Ile Glu Val Arg His Ile Phe Pro Thr Ser Leu Gly Leu Pro
 785 790 795 800
 Met Glu Leu Ser Leu Tyr Thr Ala Ala Val Thr Ala Ala Ser Val Glu
 805 810 815
 Val Gln Ala Thr Ile Ser Pro Pro Leu Pro Glu Asp Phe His Pro Ala
 820 825 830
 His Leu Leu Lys Ser Asp Ile Ser Met Lys Ala Ser Val Thr Pro Ser
 835 840 845
 Val Ser Leu His Thr Tyr Gly Val Met Gly Val Asn Ser Pro Phe Ile
 850 855 860
 Gln Ala Ser Val Leu Ser Arg Ala Lys Asp His Ala Ala Leu Pro Lys
 865 870 875 880
 Lys Met Glu Ala Arg Leu Asp Ile Val Lys Gly Tyr Phe Ser Tyr Gln
 885 890 895
 Phe Leu Pro Val Glu Gly Val Lys Thr Ile Ala Ser Ala Arg Leu Glu

900	905	910
Thr Val Ala Ile Ala Arg Asp 915	Val Glu Gly Leu Ala Ala 920	Ala Lys Val 925
Thr Pro Val Val Pro Tyr 930	Glu Pro Ile Val Ser 935	Lys Asn Ala Thr Leu 940
Asn Leu Ser Gln Met Ser Tyr Tyr Leu Asn Asp Ser Ile Ser Ala Ser 945	950	955 960
Ser Glu Leu Leu Pro Phe Ser Leu Gln Arg Gln Thr Gly Lys Asn Lys 965	970	975
Ile Pro Lys Pro Ile Val Lys Lys Met Cys Ala Thr Thr Tyr Thr Tyr 980	985	990
Gly Ile Glu Gly Cys Val Asp Ile Trp Ser Arg Asn Ala Thr Phe Leu 995	1000	1005
Arg Asn Thr Pro Ile Tyr Ala Ile Ile Gly Asn His Ser Leu Leu 1010	1015	1020
Val Asn Val Thr Pro Ala Ala Gly Pro Ser Ile Glu Arg Ile Glu 1025	1030	1035
Ile Glu Val Gln Phe Gly Glu Gln Ala Ala Glu Lys Ile Leu Lys 1040	1045	1050
Glu Val Tyr Leu Asn Glu Glu Glu Glu Val Leu Glu Asp Lys Asn 1055	1060	1065
Val Leu Met Lys Leu Lys Lys Ile Leu Ser Pro Gly Leu Lys Asn 1070	1075	1080
Ser Thr Lys Ala Ser Ser Ser Ser Ser Gly Ser Ser Arg Ser Ser 1085	1090	1095
Arg Ser Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser 1100	1105	1110
Ser Ser Arg Ser Ser Ser Ser Ser Ser Arg Ser Ser Ser Ser Leu 1115	1120	1125
Arg Arg Asn Ser Lys Met Leu Asp Leu Ala Asp Pro Leu Asn Ile 1130	1135	1140
Thr Ser Lys Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser 1145	1150	1155
Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Lys Thr Lys Trp 1160	1165	1170

Gln Leu His Glu Arg Asn Phe Thr Lys Asp His Ile His Gln His
 1175 1180 1185
 Ser Val Ser Lys Glu Arg Leu Asn Ser Lys Ser Ser Ala Ser Ser
 1190 1195 1200
 Phe Glu Ser Ile Tyr Asn Lys Ile Thr Tyr Leu Ser Asn Ile Val
 1205 1210 1215
 Ser Pro Val Val Thr Val Leu Val Arg Ala Ile Arg Ala Asp His
 1220 1225 1230
 Lys Asn Gln Gly Tyr Gln Ile Ala Val Tyr Tyr Asp Lys Leu Thr
 1235 1240 1245
 Thr Arg Val Gln Ile Ile Val Ala Asn Leu Thr Glu Asp Asp Asn
 1250 1255 1260
 Trp Arg Ile Cys Ser Asp Ser Met Met Leu Ser His His Lys Val
 1265 1270 1275
 Met Thr Arg Val Thr Trp Gly Ile Gly Cys Lys Gln Tyr Asn Thr
 1280 1285 1290
 Thr Ile Val Ala Glu Thr Gly Arg Val Glu Lys Glu Pro Ala Val
 1295 1300 1305
 Arg Val Lys Leu Ala Trp Ala Arg Leu Pro Thr Tyr Ile Arg Asp
 1310 1315 1320
 Tyr Ala Arg Arg Val Ser Arg Tyr Ile Ser Arg Val Ala Glu Asp
 1325 1330 1335
 Asn Gly Val Asn Arg Thr Lys Val Ala Ser Lys Pro Lys Glu Ile
 1340 1345 1350
 Lys Leu Thr Val Ala Val Ala Asn Glu Thr Ser Leu Asn Val Thr
 1355 1360 1365
 Leu Asn Thr Pro Lys Asn Thr Phe Phe Lys Leu Gly Trp Val Leu
 1370 1375 1380
 Pro Phe Tyr Leu Pro Ile Asn Asn Thr Ala Ala Glu Leu Gln Ala
 1385 1390 1395
 Phe Gln Gly Arg Trp Met Asp Gln Val Thr Tyr Met Leu Thr Lys
 1400 1405 1410
 Ser Ala Ala Ala Glu Cys Thr Val Val Glu Asp Thr Val Val Thr
 1415 1420 1425
 Phe Asn Asn Arg Lys Tyr Lys Thr Glu Thr Pro His Ser Cys His

1430	1435	1440
Gln Val 1445	Leu Ala Gln Asp Cys 1450	Thr Ser Glu Ile Lys 1455
		Phe Ile Val
Leu Leu 1460	Lys Arg Asp Gln Thr 1465	Ala Glu Arg Asn Glu 1470
		Ile Ser Ile
Lys Ile 1475	Glu Asn Ile Asp Val 1480	Asp Met Tyr Pro Lys 1485
		Asp Asn Ala
Val Val 1490	Val Lys Val Asn Gly 1495	Val Glu Ile Pro Leu 1500
		Thr Asn Leu
Pro Tyr 1505	Gln His Pro Thr Gly 1510	Asn Ile Gln Ile Arg 1515
		Gln Arg Glu
Glu Gly 1520	Ile Ser Leu His Ala 1525	Pro Ser His Gly Leu 1530
		Gln Glu Val
Phe Leu 1535	Ser Leu Asn Lys Val 1540	Gln Val Lys Val Val 1545
		Asp Trp Met
Arg Gly 1550	Gln Thr Cys Gly Leu 1555	Cys Gly Lys Ala Asp 1560
		Gly Glu Val
Arg Gln 1565	Glu Tyr Ser Thr Pro 1570	Asn Glu Arg Val Ser 1575
		Arg Asn Ala
Thr Ser 1580	Phe Ala His Ser Trp 1585	Val Leu Pro Ala Lys 1590
		Ser Cys Arg
Asp Ala 1595	Ser Glu Cys Tyr Met 1600	Gln Leu Glu Ser Val 1605
		Lys Leu Glu
Lys Gln 1610	Ile Ser Leu Glu Gly 1615	Glu Glu Ser Lys Cys 1620
		Tyr Ser Val
Glu Pro 1625	Val Trp Arg Cys Leu 1630	Pro Gly Cys Ala Pro 1635
		Val Arg Thr
Thr Ser 1640	Val Thr Val Gly Leu 1645	Pro Cys Val Ser Leu 1650
		Asp Ser Asn
Leu Asn 1655	Arg Ser Asp Ser Leu 1660	Ser Ser Ile Tyr Gln 1665
		Lys Ser Val
Asp Val 1670	Ser Glu Thr Ala Glu 1675	Ser His Leu Ala Cys 1680
		Arg Cys Thr
Pro Gln 1685	Cys Ala	

<210> 15
 <211> 1659
 <212> PRT
 <213> Oncorhynchus mykiss

<400> 15

Met Arg Ala Val Val Leu Ala Leu Thr Leu Ala Leu Val Ala Ser Gln
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Ser Val Asn Phe Ala Pro Asp Phe Ala Ala Ser Lys Thr Tyr Val Tyr
 20 25 30

Lys Tyr Glu Ala Leu Leu Leu Gly Gly Leu Pro Glu Glu Gly Leu Ala
 35 40 45

Arg Ala Gly Val Lys Val Ile Ser Lys Val Leu Ile Ser Ala Val Ala
 50 55 60

Glu Asn Thr Tyr Leu Leu Lys Leu Val Asn Pro Glu Ile Phe Glu Tyr
 65 70 75 80

Ser Gly Val Trp Pro Lys Asp Pro Phe Val Pro Ala Ala Lys Leu Thr
 85 90 95

Ser Ala Leu Ala Ala Gln Phe Ser Ile Pro Ile Lys Phe Glu Tyr Ala
 100 105 110

Lys Gly Val Val Gly Lys Val Leu Ala Pro Thr Ala Val Ser Glu Thr
 115 120 125

Val Leu Asn Val His Arg Gly Ile Leu Asn Ile Leu Gln Leu Asn Ile
 130 135 140

Lys Lys Thr Gln Asn Val Tyr Glu Leu Gln Glu Ala Gly Ala Gln Gly
 145 150 155 160

Val Cys Lys Thr His Tyr Val Ile Arg Glu Asp Ala Lys Ala Glu Arg
 165 170 175

Ile His Leu Thr Lys Ser Lys Asp Leu Asn Asn Cys Gln Gln Arg Ile
 180 185 190

Met Lys Asp Phe Gly Leu Ala Tyr Thr Glu Lys Cys Val Glu Cys Arg
 195 200 205

Gln Arg Gly Glu Ala Leu Met Gly Ala Ala Thr Tyr Asn Tyr Leu Met
 210 215 220

Lys Pro Ala Asp Asn Gly Ala Leu Ile Leu Glu Ala Thr Val Thr Glu
 225 230 235 240

Leu His Gln Phe Thr Pro Phe Asn Glu Met Ser Gly Ala Ala Gln Met
 245 250 255

Glu Ala Lys Gln Met Leu Thr Phe Val Glu Ile Lys Lys Asp Pro Ile
 260 265 270

Ile Val Pro Asp Asn Asn Tyr Val His Arg Gly Ser Ile Arg Tyr Glu
 275 280 285

Phe Ala Thr Glu Ile Leu Gln Met Pro Ile Gln Leu Leu Lys Ile Ser
 290 295 300

Asn Ala Arg Ala Gln Ala Val Lys Ile Leu Asn His Leu Val Thr Tyr
 305 310 315 320

Asn Thr Ala Pro Val His Glu Asp Ala Pro Leu Lys Phe Leu Gln Phe
 325 330 335

Ile Gln Leu Leu Arg Met Ala Ser Ser Glu Thr Ile Asn Ala Ile Trp
 340 345 350

Ala Glu Phe Lys Ala Lys Pro Ala Tyr Arg His Trp Ile Leu Asp Ala
 355 360 365

Val Pro Ser Ile Gly Ser Ser Val Ala Val Arg Phe Ile Lys Glu Lys
 370 375 380

Phe Leu Ala Gly Asp Ile Thr Ile Phe Glu Ala Ala Gln Ala Leu Val
 385 390 395 400

Ala Ala Val His Met Val Ala Ala Asp Leu Glu Thr Val Lys Leu Val
 405 410 415

Glu Ser Leu Ala Phe Asn His Lys Ile Gln Thr His Pro Val Leu Arg
 420 425 430

Glu Leu Thr Met Leu Gly Tyr Gly Thr Met Val Ser Lys Tyr Cys Val
 435 440 445

Glu His Pro Asn Cys Pro Ala Glu Leu Val Lys Pro Ile His Glu Leu
 450 455 460

Ala Val Gln Ala Val Ala Asn Ser Lys Phe Glu Glu Leu Ser Met Val
 465 470 475 480

Leu Lys Ala Leu Gly Asn Ala Gly His Pro Ala Ser Ile Lys Pro Ile
 485 490 495

Thr Lys Leu Leu Pro Val Phe Gly Thr Ala Ala Ala Ala Leu Pro Leu
 500 505 510

Arg Val Gln Ala Asp Ala Val Leu Ala Leu Arg Asn Ile Ala Lys Arg
 515 520 525

Glu Pro Arg Met Val Gln Glu Val Ala Val Gln Leu Phe Met Asp Lys
 530 535 540

Ala Leu His Pro Glu Leu Arg Met Leu Ala Cys Ile Val Leu Phe Glu
 545 550 555 560

Thr Lys Pro Pro Met Gly Leu Val Ile Thr Leu Ala Ser Ile Leu Lys
 565 570 575

Thr Glu Lys Asn Met Gln Val Ala Ser Phe Thr Tyr Ser His Met Met
 580 585 590

Ser Leu Thr Arg Ser Thr Ala Pro Asp Phe Ala Ser Val Ala Ala Ala
 595 600 605

Cys Asn Val Ala Val Lys Met Leu Ser Asn Lys Phe Arg Arg Leu Ser
 610 615 620

Cys His Phe Ser Gln Ala Ile His Leu Asp Ala Tyr Ser Asn Pro Leu
 625 630 635 640

Arg Ile Gly Ala Ala Ala Ser Ala Phe Tyr Ile Asn Asp Ala Ala Thr
 645 650 655

Leu Phe Pro Arg Thr Val Val Ala Lys Ala Arg Thr Tyr Phe Ala Gly
 660 665 670

Ala Ala Ala Asp Val Leu Glu Val Gly Val Arg Thr Glu Gly Ile Gln
 675 680 685

Glu Ala Leu Leu Lys Leu Pro Pro Ala Pro Glu Asn Ala Asp Arg Ile
 690 695 700

Thr Lys Met Arg Arg Val Ile Lys Ala Leu Ser Asp Trp Arg Ser Leu
 705 710 715 720

Ala Thr Ser Lys Pro Leu Ala Ser Ile Tyr Val Lys Phe Phe Gly Gln
 725 730 735

Glu Ile Ala Phe Ala Asn Ile Asp Lys Ser Ile Ile Asp Gln Ala Leu
 740 745 750

Gln Leu Ala Asn Ser Pro Ser Ala His Ala Leu Gly Arg Asn Ala Leu
 755 760 765

Lys Ala Leu Leu Ala Gly Ala Thr Phe Gln Tyr Val Lys Pro Leu Leu
 770 775 780

Ala Ala Glu Val Arg Arg Ile Phe Pro Thr Ala Val Gly Leu Pro Met
 785 790 795 800

Glu Leu Ser Tyr Tyr Thr Ala Ala Val Ala Lys Ala Tyr Val Asn Val
 805 810 815

Arg Ala Thr Leu Thr Pro Ala Leu Pro Glu Thr Phe His Ala Ala Gln
 820 825 830
 Leu Leu Lys Thr Asn Ile Glu Leu His Ala Glu Val Arg Pro Ser Ile
 835 840 845
 Val Met His Thr Phe Ala Val Met Gly Val Asn Thr Ala Phe Ile Gln
 850 855 860
 Ala Ala Ile Met Ala Arg Ala Lys Val Arg Thr Ile Val Pro Ala Lys
 865 870 875 880
 Phe Ala Ala Gln Leu Asp Ile Ala Asn Gly Asn Phe Lys Phe Glu Ala
 885 890 895
 Phe Pro Val Ser Pro Pro Glu His Ile Ala Ala Ala His Ile Glu Thr
 900 905 910
 Phe Ala Val Ala Arg Asn Val Glu Asp Val Pro Ala Glu Arg Ile Thr
 915 920 925
 Pro Leu Ile Pro Ala Gln Gly Val Ala Arg Ser Thr Gln Gln Ser Arg
 930 935 940
 Asp Lys Leu Thr Ser Met Ile Ala Asp Ser Ala Ala Ser Phe Ala Gly
 945 950 955 960
 Ser Leu Ser Arg Ser Ser Glu Ile Leu Tyr Ser Asp Leu Pro Ser Asn
 965 970 975
 Phe Lys Pro Ile Ile Lys Ala Ile Val Val His Leu Glu Glu Thr Ile
 980 985 990
 Cys Val Glu Arg Leu Gly Val Lys Ala Cys Phe Glu Phe Thr Ser Glu
 995 1000 1005
 Ser Ala Ala Phe Ile Arg Asn Thr Leu Phe Tyr Asn Met Ile Gly
 1010 1015 1020
 Lys His Ser Val Leu Ile Ser Val Lys Pro Ser Ala Ser Glu Pro
 1025 1030 1035
 Ala Ile Glu Arg Leu Glu Phe Glu Val Gln Val Gly Pro Lys Ala
 1040 1045 1050
 Ala Glu Lys Ile Ile Lys Val Ile Thr Met Asn Glu Glu Glu Glu
 1055 1060 1065
 Ala Pro Glu Gly Lys Thr Val Leu Leu Lys Leu Lys Lys Ile Leu
 1070 1075 1080

Leu Pro Asp Leu Lys Asn Gly Thr Arg Ala Ser Ser Ser Ser Ser
 1085 1090 1095
 Ser Ser Ser Ser Ser Ser Arg Ser Ser Ser Ser Arg Ser Arg
 1100 1105 1110
 Ser Arg Lys Ser Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
 1115 1120 1125
 Arg Ile Ser Lys Arg Asp Gly Pro Asp Gln Pro Tyr Asn Pro Asn
 1130 1135 1140
 Asp Arg Lys Phe Lys Lys Asn His Lys Asp Ser Gln Ser Thr Ser
 1145 1150 1155
 Asn Val Ile Ser Arg Ser Lys Ser Ser Ala Ser Ser Phe His Ala
 1160 1165 1170
 Ile Tyr Lys Gln Asp Lys Phe Leu Gly Asn Lys Leu Ala Pro Met
 1175 1180 1185
 Val Ile Ile Leu Phe Arg Leu Val Arg Ala Asp His Lys Ile Glu
 1190 1195 1200
 Gly Tyr Gln Val Thr Ala Tyr Leu Asn Lys Ala Thr Ser Arg Leu
 1205 1210 1215
 Gln Ile Ile Met Ala Ala Leu Asp Glu Asn Asp Asn Trp Lys Leu
 1220 1225 1230
 Cys Ala Asp Gly Val Leu Leu Ser Lys His Lys Val Thr Ala Lys
 1235 1240 1245
 Ile Ala Trp Gly Ala Glu Cys Lys Asp Tyr Asn Thr Phe Ile Thr
 1250 1255 1260
 Ala Glu Thr Gly Leu Val Gly Pro Ser Pro Ala Val Arg Leu Arg
 1265 1270 1275
 Leu Ser Trp Asp Lys Leu Pro Lys Val Pro Lys Ala Val Trp Arg
 1280 1285 1290
 Tyr Val Arg Ile Val Ser Glu Phe Ile Pro Gly Tyr Ile Pro Tyr
 1295 1300 1305
 Tyr Leu Ala Asp Leu Val Pro Met Gln Lys Asp Lys Asn Asn Glu
 1310 1315 1320
 Lys Gln Ile Gln Phe Thr Val Val Ala Thr Ser Glu Arg Thr Leu
 1325 1330 1335
 Asp Val Ile Leu Lys Thr Pro Lys Met Thr Leu Tyr Lys Leu Gly
 1340 1345 1350

Val Asn Leu Pro Cys Ser Leu Pro Phe Glu Ser Met Thr Asp Leu
1355 1360 1365

Ser Pro Phe Asp Asp Asn Ile Val Asn Lys Ile His Tyr Leu Phe
1370 1375 1380

Ser Glu Val Asn Ala Val Lys Cys Ser Met Val Arg Asp Thr Leu
1385 1390 1395

Thr Thr Phe Asn Asn Lys Lys Tyr Lys Ile Asn Met Pro Leu Ser
1400 1405 1410

Cys Tyr Gln Val Leu Ala Gln Asp Cys Thr Thr Glu Leu Lys Phe
1415 1420 1425

Met Val Leu Leu Lys Lys Asp His Ala Ser Glu Gln Asn His Ile
1430 1435 1440

Asn Val Lys Ile Ser Asp Ile Asp Val Asp Leu Tyr Thr Glu Asp
1445 1450 1455

His Gly Val Ile Val Lys Val Asn Glu Met Glu Ile Ser Asn Asp
1460 1465 1470

Asn Leu Pro Tyr Lys Asp Pro Ser Gly Ser Ile Lys Ile Asp Arg
1475 1480 1485

Lys Gly Lys Gly Val Ser Leu Tyr Ala Pro Ser His Gly Leu Gln
1490 1495 1500

Glu Val Tyr Phe Asp Lys Tyr Ser Trp Lys Ile Lys Val Val Asp
1505 1510 1515

Trp Met Lys Gly Gln Thr Cys Gly Leu Cys Gly Lys Ala Asp Gly
1520 1525 1530

Glu Asn Arg Gln Glu Tyr Arg Thr Pro Ser Gly Arg Leu Thr Lys
1535 1540 1545

Ser Ser Val Ser Phe Ala His Ser Trp Val Leu Pro Ser Asp Ser
1550 1555 1560

Cys Arg Asp Ala Ser Glu Cys Leu Met Lys Leu Glu Ser Val Lys
1565 1570 1575

Leu Glu Lys Gln Val Ile Val Asp Asp Arg Glu Ser Lys Cys Tyr
1580 1585 1590

Ser Val Glu Pro Val Leu Arg Cys Leu Pro Gly Cys Leu Pro Val
1595 1600 1605

Arg Thr Thr Pro Ile Thr Ile Gly Phe His Cys Leu Pro Val Asp
1610 1615 1620

Ser Asn Leu Asn Arg Ser Glu Gly Leu Ser Ser Ile Tyr Glu Lys
1625 1630 1635

Ser Val Asp Leu Met Glu Lys Ala Glu Ala His Val Ala Cys Arg
1640 1645 1650

Cys Ser Glu Gln Cys Met
1655

<210> 16
<211> 1704
<212> PRT
<213> Fundulus heteroclitus

<400> 16

) Met Lys Ala Val Val Leu Ala Leu Thr Leu Ala Phe Val Ala Gly Gln
1 5 10 15

Asn Phe Ala Pro Glu Phe Ala Ala Gly Lys Thr Tyr Val Tyr Lys Tyr
20 25 30

Glu Ala Leu Ile Leu Gly Gly Leu Pro Glu Glu Gly Leu Ala Arg Ala
35 40 45

Gly Leu Lys Ile Ser Thr Lys Leu Leu Leu Ser Ala Ala Asp Gln Asn
50 55 60

Thr Tyr Met Leu Lys Leu Val Glu Pro Glu Leu Ser Glu Tyr Ser Gly
65 70 75 80

Ile Trp Pro Lys Asp Pro Ala Val Pro Ala Thr Lys Leu Thr Ala Ala
85 90 95

) Leu His Leu Ser Ser Gln Phe Pro Ser Ser Leu Asn Thr Pro Met Val
100 105 110

Phe Val Gly Lys Val Phe Ala Pro Glu Glu Val Ser Thr Leu Val Leu
115 120 125

Asn Ile Tyr Arg Gly Ile Leu Asn Ile Leu Gln Leu Asn Ile Lys Lys
130 135 140

Thr His Lys Val Tyr Asp Leu Gln Glu Val Gly Thr Gln Gly Val Cys
145 150 155 160

Lys Thr Leu Tyr Ser Ile Ser Glu Asp Ala Arg Ile Glu Asn Ile Leu
165 170 175

Leu Thr Lys Thr Arg Asp Leu Ser Asn Cys Gln Glu Arg Leu Asn Lys
180 185 190

Asp Ile Gly Leu Ala Tyr Thr Glu Lys Cys Asp Lys Cys Gln Glu Glu
 195 200 205
 Thr Lys Asn Leu Arg Gly Thr Thr Thr Leu Ser Tyr Val Leu Lys Pro
 210 215 220
 Val Ala Asp Ala Val Met Ile Leu Lys Ala Tyr Val Asn Glu Leu Ile
 225 230 235 240
 Gln Phe Ser Pro Phe Ser Glu Ala Asn Gly Ala Ala Gln Met Arg Thr
 245 250 255
 Lys Gln Ser Leu Glu Phe Leu Glu Ile Glu Lys Glu Pro Ile Pro Ser
 260 265 270
 Val Lys Ala Glu Tyr Arg His Arg Gly Ser Leu Lys Tyr Glu Phe Ser
 275 280 285
 Asp Glu Leu Leu Gln Thr Pro Leu Gln Leu Ile Lys Ile Ser Asp Ala
 290 295 300
 Pro Ala Gln Val Ala Glu Val Leu Lys His Leu Ala Thr Tyr Asn Ile
 305 310 315 320
 Glu Asp Val His Glu Asn Ala Pro Leu Lys Phe Leu Glu Leu Val Gln
 325 330 335
 Leu Leu Arg Ile Ala Arg Tyr Glu Asp Leu Glu Met Tyr Trp Asn Gln
 340 345 350
 Tyr Lys Lys Met Ser Pro His Arg His Trp Phe Leu Asp Thr Ile Pro
 355 360 365
 Ala Thr Gly Thr Phe Ala Gly Leu Arg Phe Ile Lys Glu Lys Phe Met
 370 375 380
 Ala Glu Glu Ile Thr Ile Ala Glu Ala Ala Gln Ala Phe Ile Thr Ala
 385 390 395 400
 Val His Met Val Thr Ala Asp Pro Glu Val Ile Lys Leu Phe Glu Ser
 405 410 415
 Leu Val Asp Ser Asp Lys Val Val Glu Asn Pro Leu Leu Arg Glu Val
 420 425 430
 Val Phe Leu Gly Tyr Gly Thr Met Val Asn Lys Tyr Cys Asn Lys Thr
 435 440 445
 Val Asp Cys Pro Val Glu Leu Ile Lys Pro Ile Gln Gln Arg Leu Ser
 450 455 460
 Asp Ala Ile Ala Lys Asn Glu Glu Glu Asn Ile Ile Leu Tyr Ile Lys

Gly Lys Glu Leu Pro Ile Gln Glu Tyr Gly Arg Glu Ala Leu Lys Ala
 755 760 765
 Leu Leu Leu Ser Gly Ile Asn Phe His Tyr Ala Lys Pro Val Leu Ala
 770 775 780
 Ala Glu Met Arg Arg Ile Leu Pro Thr Val Ala Gly Ile Pro Met Glu
 785 790 795 800
 Leu Ser Leu Tyr Ser Ala Ala Val Ala Ala Ala Ser Val Glu Ile Lys
 805 810 815
 Pro Asn Thr Ser Pro Arg Leu Ser Ala Asp Phe Asp Val Lys Thr Leu
 820 825 830
 Leu Glu Thr Asp Val Glu Leu Lys Ala Glu Ile Arg Pro Met Val Ala
 835 840 845
 Met Asp Thr Tyr Ala Val Met Gly Leu Asn Thr Asp Ile Phe Gln Ala
 850 855 860
 Ala Leu Val Ala Arg Ala Lys Leu His Ser Val Val Pro Ala Lys Ile
 865 870 875 880
 Ala Ala Arg Leu Asn Ile Lys Glu Gly Asp Phe Lys Leu Glu Ala Leu
 885 890 895
 Pro Val Asp Val Pro Glu Asn Ile Thr Ser Met Asn Val Thr Thr Phe
 900 905 910
 Ala Val Ala Arg Asn Ile Glu Glu Pro Leu Val Glu Arg Ile Thr Pro
 915 920 925
 Leu Leu Pro Thr Lys Val Leu Val Pro Ile Pro Ile Arg Arg His Thr
 930 935 940
 Ser Lys Leu Asp Pro Thr Arg Asn Ser Met Leu Asp Ser Ser Glu Leu
 945 950 955 960
 Leu Pro Met Glu Glu Glu Asp Val Glu Pro Ile Pro Glu Tyr Lys Phe
 965 970 975
 Arg Arg Phe Ala Lys Lys Tyr Cys Ala Lys His Ile Gly Val Gly Leu
 980 985 990
 Lys Ala Cys Phe Lys Phe Ala Ser Gln Asn Gly Ala Ser Ile Gln Asp
 995 1000 1005
 Ile Val Leu Tyr Lys Leu Ala Gly Ser His Asn Phe Ser Phe Ser
 1010 1015 1020
 Val Thr Pro Ile Glu Gly Glu Val Val Glu Arg Leu Glu Met Glu

1025	1030	1035
Val Lys 1040	Val Gly Ala Lys Ala 1045	Ala Glu Lys Leu Val Lys Arg Ile 1050
Asn Leu 1055	Ser Glu Asp Glu Glu Thr Glu Glu Gly Gly 1060	Pro Val Leu 1065
Val Lys 1070	Leu Asn Lys Ile Leu Ser Ser Arg Arg Asn Ser Ser Ser 1075	1080
Ser Ser 1085	Ser Ser Ser Ser Ser Ser Ser Ser Ser Glu Ser Arg Ser Ser 1090	1095
Arg Ser 1100	Ser Ser Ser Ser Ser Ser Ser Ser Ser Arg Ser Ser Arg Lys 1105	1110
Ile Asp 1115	Leu Ala Ala Arg Thr Asn Ser Ser Ser Ser Ser Ser Ser Ser 1120	1125
Arg Arg 1130	Ser Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser 1135	1140
Ser Ser 1145	Ser Ser Ser Ser Ser Ser Ser Ser Ser Arg Arg Ser Ser Ser Ser 1150	1155
Ser Ser 1160	Ser Ser Ser Ser Ser Ser Ser Ser Ser Arg Ser Ser Arg Arg Val 1165	1170
Asn Ser 1175	Thr Arg Ser Ser Ser Ser Ser Ser Ser Arg Thr Ser Ser Ala 1180	1185
Ser Ser 1190	Leu Ala Ser Phe Phe Ser Asp Ser Ser Ser Ser Ser Ser Ser 1195	1200
Ser Ser 1205	Asp Arg Arg Ser Lys Glu Val Met Glu Lys Phe Gln Arg 1210	1215
Leu His 1220	Lys Lys Met Val Ala Ser Gly Ser Ser Ala Ser Ser Val 1225	1230
Glu Ala 1235	Ile Tyr Lys Glu Lys Lys Tyr Leu Gly Glu Glu Glu Ala 1240	1245
Val Val 1250	Ala Val Ile Leu Arg Ala Val Lys Ala Asp Lys Arg Met 1255	1260
Val Gly 1265	Tyr Gln Leu Gly Phe Tyr Leu Asp Lys Pro Asn Ala Arg 1270	1275
Val Gln 1280	Ile Ile Val Ala Asn Ile Ser Ser Asp Ser Asn Trp Arg 1285	1290

Ile Cys Ala Asp Ala Val Val Leu Ser Lys His Lys Val Thr Thr
 1295 1300 1305
 Lys Ile Ser Trp Gly Glu Gln Cys Arg Lys Tyr Ser Thr Asn Val
 1310 1315 1320
 Thr Gly Glu Thr Gly Ile Val Ser Ser Ser Pro Ala Ala Arg Leu
 1325 1330 1335
 Arg Val Ser Trp Glu Arg Leu Pro Ser Thr Leu Lys Arg Tyr Gly
 1340 1345 1350
 Lys Met Val Asn Lys Tyr Val Pro Val Lys Ile Leu Ser Asp Leu
 1355 1360 1365
 Ile His Thr Lys Arg Glu Asn Ser Thr Arg Asn Ile Ser Val Ile
 1370 1375 1380
 Ala Val Ala Thr Ser Glu Lys Thr Ile Asp Ile Ile Thr Lys Thr
 1385 1390 1395
 Pro Met Ser Ser Val Tyr Asn Val Thr Met His Leu Pro Met Cys
 1400 1405 1410
 Ile Pro Ile Asp Glu Ile Lys Gly Leu Ser Pro Phe Asp Glu Val
 1415 1420 1425
 Ile Asp Lys Ile His Phe Met Val Ser Lys Ala Ala Ala Ala Glu
 1430 1435 1440
 Cys Ser Phe Val Glu Asp Thr Leu Tyr Thr Phe Asn Asn Arg Ser
 1445 1450 1455
 Tyr Lys Asn Lys Met Pro Ser Ser Cys Tyr Gln Val Ala Ala Gln
 1460 1465 1470
 Asp Cys Thr Asp Glu Leu Lys Phe Met Val Leu Leu Arg Lys Asp
 1475 1480 1485
 Ser Ser Glu Gln His His Ile Asn Val Lys Ile Ser Glu Ile Asp
 1490 1495 1500
 Ile Asp Met Phe Pro Lys Asp Asp Asn Val Thr Val Lys Val Asn
 1505 1510 1515
 Glu Met Glu Ile Pro Pro Pro Ala Cys Leu Thr Ala Thr Gln Gln
 1520 1525 1530
 Leu Pro Leu Lys Ile Lys Thr Lys Arg Arg Gly Leu Ala Val Tyr
 1535 1540 1545
 Ala Pro Ser His Gly Leu Gln Glu Val Tyr Phe Asp Arg Lys Thr

1550 1555 1560
 Trp Arg Ile Lys Val Ala Asp Trp Met Lys Gly Lys Thr Cys Gly
 1565 1570 1575
 Leu Cys Gly Lys Ala Asp Gly Glu Ile Arg Gln Glu Tyr His Thr
 1580 1585 1590
 Pro Asn Gly Arg Val Ala Lys Asn Ser Ile Ser Phe Ala His Ser
 1595 1600 1605
 Trp Ile Leu Pro Ala Glu Ser Cys Arg Asp Ala Ser Glu Cys Arg
 1610 1615 1620
 Leu Lys Leu Glu Ser Val Gln Leu Glu Lys Gln Leu Thr Ile His
 1625 1630 1635
) Gly Glu Asp Ser Thr Cys Phe Ser Val Glu Pro Val Pro Arg Cys
 1640 1645 1650
 Leu Pro Gly Cys Leu Pro Val Lys Thr Thr Pro Val Thr Val Gly
 1655 1660 1665
 Phe Ser Cys Leu Ala Ser Asp Pro Gln Thr Ser Val Tyr Asp Arg
 1670 1675 1680
 Ser Val Asp Leu Arg Gln Thr Thr Gln Ala His Leu Ala Cys Ser
 1685 1690 1695
 Cys Asn Thr Lys Cys Ser
 1700
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 <211> 1677
 <212> PRT
) <213> Acipenser transmontanus
 <400> 17
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 1 5 10 15
 Phe Ser Gly Ser Lys Thr Tyr Gln Tyr Lys Tyr Glu Gly Val Ile Leu
 20 25 30
 Thr Gly Leu Pro Glu Lys Gly Leu Ala Arg Ala Gly Leu Lys Val His
 35 40 45
 Cys Lys Val Glu Ile Ser Glu Val Ala Gln Lys Thr Tyr Leu Leu Lys
 50 55 60
 Ile Leu Asn Pro Glu Ile Gln Glu Tyr Asn Gly Ile Trp Pro Lys Ala
 65 70 75 80

Pro Phe Tyr Pro Ala Ser Lys Leu Thr Gln Ala Leu Ala Ser Gln Leu
 85 90 95
 Thr Gln Pro Ile Lys Phe Gln Tyr Arg Asn Gly Gln Val Gly Asp Ile
 100 105 110
 Phe Ala Ser Glu Asp Val Ser Asp Thr Val Leu Asn Ile Gln Arg Gly
 115 120 125
 Ile Leu Asn Met Leu Gln Leu Thr Ile Lys Thr Thr Gln Asn Val Tyr
 130 135 140
 Gly Leu Gln Glu Asn Gly Ile Ala Gly Ile Cys Glu Ala Ser Tyr Val
 145 150 155 160
 Ile Gln Glu Asp Arg Lys Ala Asn Lys Ile Ile Val Thr Lys Ser Lys
 165 170 175
 Asp Leu Asn Asn Cys Asn Glu Lys Ile Lys Met Asp Ile Gly Met Ala
 180 185 190
 Tyr Ser His Thr Cys Ser Asn Cys Arg Lys Ile Arg Lys Asn Thr Arg
 195 200 205
 Gly Thr Ala Ala Tyr Thr Tyr Ile Leu Lys Pro Thr Asp Thr Gly Thr
 210 215 220
 Leu Ile Thr Gln Ala Thr Ser Gln Glu Val His Gln Leu Thr Pro Phe
 225 230 235 240
 Asn Glu Met Thr Gly Ala Ala Ile Thr Glu Ala Arg Gln Lys Leu Val
 245 250 255
 Leu Glu Asp Ala Lys Val Ile His Val Thr Val Pro Glu Gln Glu Leu
 260 265 270
 Lys Asn Arg Gly Ser Ile Gln Tyr Gln Phe Ala Ser Glu Ile Leu Gln
 275 280 285
 Thr Pro Ile Gln Leu Phe Lys Thr Arg Ser Pro Glu Thr Lys Ile Lys
 290 295 300
 Glu Val Leu Gln His Leu Val Gln Asn Asn Gln Gln Gln Val Gln Ser
 305 310 315 320
 Asp Ala Pro Ser Lys Phe Leu Gln Leu Thr Gln Leu Leu Arg Ala Cys
 325 330 335
 Thr His Glu Asn Ile Glu Gly Ile Trp Arg Gln Tyr Glu Lys Thr Gln
 340 345 350
 Leu Tyr Arg Arg Trp Ile Leu Asp Ala Leu Pro Ala Ala Ala Thr Pro
 355 360 365

Thr Ala Phe Arg Phe Ile Thr Gln Arg Ile Met Lys Arg Asp Leu Thr
 370 375 380
 Asp Ala Glu Ala Ile Gln Thr Leu Val Thr Ala Met His Leu Val Gln
 385 390 395 400
 Thr Asn His Gln Ile Val Gln Met Ala Ala Glu Leu Val Phe Asp Arg
 405 410 415
 Ala Asn Leu Lys Cys Pro Val Leu Arg Lys His Ala Val Leu Ala Tyr
 420 425 430
 Gly Ser Met Val Asn Arg Tyr Cys Ala Glu Thr Leu Asn Cys Arg Glu
 435 440 445
 Glu Ala Leu Lys Pro Leu His Asp Phe Ala Asn Asp Ala Ile Ser Arg
 450 455 460
 Ala His Glu Glu Glu Thr Val Leu Ala Leu Lys Ala Leu Gly Asn Ala
 465 470 475 480
 Gly Gln Pro Ser Ser Ile Lys Arg Ile Gln Lys Cys Leu Pro Gly Phe
 485 490 495
 Ser Ser Gly Ala Ser Gln Leu Pro Val Lys Ile Gln Val Asp Ala Val
 500 505 510
 Met Ala Leu Arg Asn Ile Ala Lys Lys Glu Pro Gly Lys Val Gln Glu
 515 520 525
 Leu Thr Met Gln Leu Phe Met Asp His Gln Leu His Ser Glu Val Arg
 530 535 540
 Met Val Ala Ser Met Val Leu Leu Glu Thr Arg Pro Ser Met Ala Leu
 545 550 555 560
 Val Ala Thr Leu Ala Glu Ala Leu Leu Lys Glu Thr Ser Leu Gln Val
 565 570 575
 Ala Ser Phe Thr Tyr Ser His Met Lys Ala Ile Thr Arg Ser Thr Ala
 580 585 590
 Pro Glu Asn His Ala Leu Ser Ser Ala Cys Asn Val Ala Val Lys Leu
 595 600 605
 Leu Ser Arg Lys Leu Asp Arg Leu Ser Tyr Arg Tyr Ser Lys Ala Met
 610 615 620
 His Met Asp Thr Phe Lys Tyr Pro Leu Met Ala Gly Ala Ala Ala Asn
 625 630 635 640

Ile His Ile Ile Asn Asn Ala Ala Ser Ile Leu Pro Ser Ala Val Val
 645 650 655
 Met Lys Phe Gln Ala Tyr Ile Leu Ser Ala Thr Ala Asp Pro Leu. Glu
 660 665 670
 Ile Gly Leu His Thr Glu Gly Leu Gln Glu Val Leu Met Gln Asn His
 675 680 685
 Glu His Ile Asp Gln Met Pro Ser Ala Gly Lys Ile Gln Gln Ile Met
 690 695 700
 Lys Met Leu Ser Gly Trp Lys Ser Val Pro Ser Glu Lys Thr Leu Ala
 705 710 715 720
 Ser Ala Tyr Ile Lys Leu Phe Gly Gln Glu Ile Ser Phe Ser Arg Leu
 725 730 735
 Asp Lys Lys Thr Ile Gln Glu Ala Leu Gln Ala Val Arg Glu Pro Val
 740 745 750
 Glu Arg Gln Thr Val Ile Lys Arg Val Val Asn Gln Leu Glu Arg Gly
 755 760 765
 Ala Ala Ala Gln Leu Ser Lys Pro Leu Leu Val Ala Glu Val Arg Arg
 770 775 780
 Ile Leu Pro Thr Cys Ile Gly Leu Pro Met Glu Met Ser Leu Tyr Val
 785 790 795 800
 Ser Ala Val Thr Thr Ala Asp Ile Asn Val Gln Ala His Ile Thr Pro
 805 810 815
 Ser Pro Thr Asn Asp Phe Asn Val Ala Gln Leu Leu Asn Ser Asn Ile
 820 825 830
 Val Leu His Thr Asp Val Thr Pro Ser Ile Ala Met His Thr Ile Ala
 835 840 845
 Val Met Gly Ile Asn Thr His Val Ile Gln Thr Gly Val Glu Leu His
 850 855 860
 Val Lys Ala Arg Thr Thr Val Pro Met Lys Phe Thr Ala Lys Ile Asp
 865 870 875 880
 Leu Lys Glu Lys Asn Phe Lys Ile Glu Ser Glu Pro Cys Gln Gln Glu
 885 890 895
 Thr Glu Val Leu Ser Leu Ser Ala Gln Ala Phe Ala Ile Ser Arg Asn
 900 905 910
 Val Glu Asp Leu Asp Ala Ala Lys Lys Asn Pro Leu Leu Pro Glu Glu
 915 920 925

Ala Val Arg Asn Ile Leu Asn Glu Gln Phe Asn Ser Gly Thr Glu Asp
 930 935 940

Ser Asn Glu Arg Glu Arg Ala Gly Lys Phe Ala Arg Pro Ser Ala Glu
 945 950 955 960

Met Met Ser Gln Glu Leu Met Asn Ser Gly Glu His Gln Asn Arg Lys
 965 970 975

Gly Ala His Ala Thr Arg Ser Ala Cys Ala Lys Ala Lys Asn Phe Gly
 980 985 990

Phe Glu Val Cys Phe Glu Gly Lys Ser Glu Asn Val Ala Phe Leu Arg
 995 1000 1005

Asp Ser Pro Leu Tyr Lys Ile Ile Gly Gln His His Cys Lys Ile
 1010 1015 1020

Ala Leu Lys Pro Ser His Ser Ser Glu Ala Thr Ile Glu Lys Ile
 1025 1030 1035

Gln Leu Glu Leu Gln Thr Gly Asn Lys Ala Ala Ser Lys Ile Ile
 1040 1045 1050

Arg Val Val Ala Met Gln Ser Leu Ala Glu Ala Asp Glu Met Lys
 1055 1060 1065

Gly Asn Ile Leu Lys Lys Leu Asn Lys Leu Leu Thr Val Asp Gly
 1070 1075 1080

Glu Thr Gln Asp Ser Thr Leu Arg Gly Phe Lys Arg Arg Ser Ser
 1085 1090 1095

Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
 1100 1105 1110

Ser Ser Ser Ser Ser Ser Gln Gln Ser Arg Met Glu Lys Arg Met
 1115 1120 1125

Glu Gln Asp Lys Leu Thr Glu Asn Leu Glu Arg Asp Arg Asp His
 1130 1135 1140

Met Arg Gly Lys Gln Ser Lys Asn Lys Lys Gln Glu Trp Lys Asn
 1145 1150 1155

Lys Gln Lys Lys His His Lys Gln Leu Pro Ser Ser Ser Ser Ser
 1160 1165 1170

Ser Ser Ser Ser Ser Ser Gly Ser Asn Ser Ser Ser Ser Ser Ser
 1175 1180 1185

Ser Ser Ser Ser Ser Ser Ser Arg Ser His Asn His Arg Asn Asn
 1190 1195 1200
 Thr Arg Thr Leu Ser Lys Ser Lys Arg Tyr Gln Asn Asn Asn Asn
 1205 1210 1215
 Ser Ser Ser Ser Ser Gly Ser Ser Ser Ser Ser Glu Glu Ile Gln
 1220 1225 1230
 Lys Asn Pro Glu Ile Phe Ala Tyr Arg Phe Arg Ser His Arg Asp
 1235 1240 1245
 Lys Leu Gly Phe Gln Asn Lys Arg Gly Arg Met Ser Ser Ser Ser
 1250 1255 1260
 Ser Ser Ser Ser Ser Ser Ser Ser Gln Ser Thr Leu Asn Ser Lys
 1265 1270 1275
 Gln Asp Ala Lys Phe Leu Gly Asp Ser Ser Pro Pro Ile Phe Ala
 1280 1285 1290
 Phe Val Ala Arg Ala Val Arg Ser Asp Gly Leu Gln Gln Gly Tyr
 1295 1300 1305
 Gln Val Ala Ala Tyr Thr Asp Asn Arg Val Ser Arg Pro Arg Val
 1310 1315 1320
 Gln Leu Leu Ala Thr Glu Ile Ile Glu Lys Ser Arg Trp Gln Ile
 1325 1330 1335
 Cys Ala Asp Ala Ile Leu Ala Ser Asn Tyr Lys Ala Met Ala Leu
 1340 1345 1350
 Met Arg Trp Gly Glu Glu Cys Gln Asp Tyr Lys Val Ala Val Ser
 1355 1360 1365
 Ala Val Thr Gly Arg Leu Ala Ser His Pro Ser Leu Gln Ile Lys
 1370 1375 1380
 Ala Lys Trp Ser Arg Ile Pro Arg Ala Ala Lys Gln Thr Gln Asn
 1385 1390 1395
 Ile Leu Ala Glu Tyr Val Pro Gly Ala Ala Phe Met Leu Gly Phe
 1400 1405 1410
 Ser Gln Lys Glu Gln Arg Asn Pro Ser Lys Gln Phe Lys Ile Ile
 1415 1420 1425
 Leu Ala Val Thr Ser Pro Asn Thr Ile Asp Thr Leu Ile Lys Ala
 1430 1435 1440
 Pro Lys Ile Thr Leu Phe Lys Gln Ala Val Gln Ile Pro Val Gln
 1445 1450 1455

Ile Pro Met Glu Pro Ser Asp Ala Glu Arg Arg Ser Pro Gly Leu
 1460 1465 1470
 Ala Ser Ile Met Asn Glu Ile Pro Phe Leu Ile Glu Glu Ala Thr
 1475 1480 1485
 Lys Ser Lys Cys Val Ala Gln Glu Asn Lys Phe Ile Thr Phe Asp
 1490 1495 1500
 Gly Val Lys Phe Ser Tyr Gln Met Pro Gly Gly Cys Tyr His Ile
 1505 1510 1515
 Leu Ala Gln Asp Cys Arg Ser Lys Val Arg Phe Met Val Met Leu
 1520 1525 1530
 Lys Gln Ala Ser Met Ser Lys Asn Leu Arg Ala Val Asn Ala Lys
 1535 1540 1545
 Ile Tyr Asn Lys Asp Ile Asp Ile Leu Pro Thr Thr Lys Gly Ser
 1550 1555 1560
 Val Arg Leu Leu Ile Asn Asn Asn Glu Ile Pro Leu Ser Gln Leu
 1565 1570 1575
 Pro Phe Thr Asp Ser Ser Gly Asn Ile His Ile Lys Arg Ala Asp
 1580 1585 1590
 Glu Gly Val Ser Val Ser Ala Gln Gln Tyr Gly Leu Glu Ser Leu
 1595 1600 1605
 Tyr Phe Asp Gly Lys Thr Val Gln Val Lys Val Thr Ser Glu Met
 1610 1615 1620
 Arg Gly Lys Thr Cys Gly Leu Cys Gly His Asn Asp Gly Glu Arg
 1625 1630 1635
 Arg Lys Glu Phe Arg Met Pro Asp Gly Arg Gln Ala Arg Gly Pro
 1640 1645 1650
 Ser Val Ser Pro Thr Pro Gly Leu Cys Leu Glu Lys Thr Ala Thr
 1655 1660 1665
 Glu Ala Ala Ser Phe Cys Val Ile Met
 1670 1675

<210> 18
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 <212> PRT
 <213> Xenopus laevis

<400> 18

Met Lys Gly Ile Val Leu Ala Leu Leu Leu Ala Leu Ala Gly Ser Glu

115

Phe Ala Ser Glu Leu His Gln Met Pro Ile His Leu Met Lys Thr Lys
 290 295 300
 Ser Pro Glu Ala Gln Ala Val Glu Val Leu Gln His Leu Val Gln Asp
 305 310 315 320
 Thr Gln Gln His Ile Arg Glu Asp Ala Pro Ala Lys Phe Leu Gln Leu
 325 330 335
 Val Gln Leu Leu Arg Ala Ser Asn Phe Glu Asn Leu Gln Ala Leu Trp
 340 345 350
 Lys Gln Phe Ala Gln Arg Thr Gln Tyr Arg Arg Cys Leu Leu Asp Ala
 355 360 365
 Leu Pro Met Ala Gly Thr Val Asp Cys Leu Lys Phe Ile Lys Gln Leu
 370 375 380
 Ile His Asn Glu Glu Leu Thr Thr Gln Glu Ala Ala Val Leu Ile Thr
 385 390 395 400
 Phe Ala Met Arg Ser Ala Arg Pro Gly Gln Arg Asn Phe Gln Ile Ser
 405 410 415
 Ala Asp Leu Val Gln Asp Ser Lys Val Gln Lys Tyr Ser Thr Val His
 420 425 430
 Lys Ala Ala Ile Leu Ala Tyr Gly Thr Met Val Arg Arg Tyr Cys Asp
 435 440 445
 Gln Leu Ser Ser Cys Pro Glu His Ala Leu Glu Pro Leu His Glu Leu
 450 455 460
 Ala Ala Glu Ala Ala Asn Lys Gly His Tyr Glu Asp Ile Ala Leu Ala
 465 470 475 480
 Leu Lys Ala Leu Gly Asn Ala Gly Gln Pro Glu Ser Ile Lys Arg Ile
 485 490 495
 Gln Lys Phe Leu Pro Gly Phe Ser Ser Ser Ala Asp Gln Leu Pro Val
 500 505 510
 Arg Ile Gln Thr Asp Ala Val Met Ala Leu Arg Asn Ile Ala Lys Glu
 515 520 525
 Asp Pro Arg Lys Val Gln Glu Ile Leu Leu Gln Ile Phe Met Asp Arg
 530 535 540
 Asp Val Arg Thr Glu Val Arg Met Met Ala Cys Leu Ala Leu Phe Glu
 545 550 555 560
 Thr Arg Pro Gly Leu Ala Thr Val Thr Ala Ile Ala Asn Val Ala Ala

565

570

575

Arg Glu Ser Lys Thr Asn Leu Gln Leu Ala Ser Phe Thr Phe Ser Gln
580 585 590

Met Lys Ala Leu Ser Lys Ser Ser Val Pro His Leu Glu Pro Leu Ala
595 600 605

Ala Ala Cys Ser Val Ala Leu Lys Ile Leu Asn Pro Ser Leu Asp Asn
610 615 620

Leu Gly Tyr Arg Tyr Ser Lys Val Met Arg Val Asp Thr Phe Lys Tyr
625 630 635 640

Asn Leu Met Ala Gly Ala Ala Ala Lys Val Phe Ile Met Asn Ser Ala
645 650 655

Asn Thr Met Phe Pro Val Phe Ile Leu Ala Lys Phe Arg Glu Tyr Thr
660 665 670

Ser Leu Val Glu Asn Asp Asp Ile Glu Ile Gly Ile Arg Gly Glu Gly
675 680 685

Ile Glu Glu Phe Leu Arg Lys Gln Asn Ile Gln Phe Ala Asn Phe Pro
690 695 700

Met Arg Lys Lys Ile Ser Gln Ile Val Lys Ser Leu Leu Gly Phe Lys
705 710 715 720

Gly Leu Pro Ser Gln Val Pro Leu Ile Ser Gly Tyr Ile Lys Leu Phe
725 730 735

Gly Gln Glu Ile Ala Phe Thr Glu Leu Asn Lys Glu Val Ile Gln Asn
740 745 750

Thr Ile Gln Ala Leu Asn Gln Pro Ala Glu Arg His Thr Met Ile Arg
755 760 765

Asn Val Leu Asn Lys Leu Leu Asn Gly Val Val Gly Gln Tyr Ala Arg
770 775 780

Arg Trp Met Thr Trp Glu Tyr Arg His Ile Ile Pro Thr Thr Val Gly
785 790 795 800

Leu Pro Ala Glu Leu Ser Leu Tyr Gln Ser Ala Ile Val His Ala Ala
805 810 815

Val Asn Ser Asp Val Lys Val Lys Pro Thr Pro Ser Gly Asp Phe Ser
820 825 830

Ala Ala Gln Leu Leu Glu Ser Gln Ile Gln Leu Asn Gly Glu Val Lys
835 840 845

Pro Ser Val Leu Val His Thr Val Ala Thr Met Gly Ile Asn Ser Pro
 850 855 860
 Leu Phe Gln Ala Gly Ile Glu Phe His Gly Lys Val His Ala His Leu
 865 870 875 880
 Pro Ala Lys Phe Thr Ala Phe Leu Asp Met Lys Asp Arg Asn Phe Lys
 885 890 895
 Ile Glu Thr Pro Pro Phe Gln Gln Glu Asn His Leu Val Glu Ile Arg
 900 905 910
 Ala Gln Thr Phe Ala Phe Thr Arg Asn Ile Ala Asp Leu Asp Ser Ala
 915 920 925
 Arg Lys Thr Leu Val Val Pro Arg Asn Asn Glu Gln Asn Ile Leu Lys
 930 935 940
 Lys His Phe Glu Thr Thr Gly Arg Thr Ser Ala Glu Gly Ala Ser Met
 945 950 955 960
 Met Glu Asp Ser Ser Glu Met Gly Pro Lys Lys Tyr Ser Ala Glu Pro
 965 970 975
 Gly His His Gln Tyr Ala Pro Asn Ile Asn Ser Tyr Asp Ala Cys Thr
 980 985 990
 Lys Phe Ser Lys Ala Gly Val His Leu Cys Ile Gln Cys Lys Thr His
 995 1000 1005
 Asn Ala Ala Ser Arg Arg Asn Thr Ile Phe Tyr Gln Ala Val Gly
 1010 1015 1020
 Glu His Asp Phe Lys Leu Thr Met Lys Pro Ala His Thr Glu Gly
 1025 1030 1035
 Ala Ile Glu Lys Leu Gln Leu Glu Ile Thr Ala Gly Pro Lys Ala
 1040 1045 1050
 Ala Ser Lys Ile Met Gly Leu Val Glu Val Glu Gly Thr Glu Gly
 1055 1060 1065
 Glu Pro Met Asp Glu Thr Ala Val Thr Lys Arg Leu Lys Met Ile
 1070 1075 1080
 Leu Gly Ile Asp Glu Ser Arg Lys Asp Thr Asn Glu Thr Ala Leu
 1085 1090 1095
 Tyr Arg Ser Lys Gln Lys Lys Lys Asn Lys Ile His Asn Arg Arg
 1100 1105 1110
 Leu Asp Ala Glu Val Val Glu Ala Arg Lys Gln Gln Ser Ser Leu

1115	1120	1125		
Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	1130	1135	1140	Ser Ser Ser
Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	1145	1150	1155	Ser Ser Ser
Ser Ser Ser Tyr Ser Lys Arg Ser Lys Arg Arg Glu His Asn Pro	1160	1165	1170	
His His Gln Arg Glu Ser Ser Ser Ser Ser Ser Ser Gln Glu Gln Asn	1175	1180	1185	
Lys Lys Arg Asn Leu Gln Glu Asn Arg Lys His Gly Gln Lys Gly	1190	1195	1200	
Met Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	1205	1210	1215	
Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	1220	1225	1230	Ser Ser Glu
Glu Asn Arg Pro His Lys Asn Arg Gln His Asp Asn Lys Gln Ala	1235	1240	1245	
Lys Met Gln Ser Asn Gln His Gln Gln Lys Lys Asn Lys Phe Ser	1250	1255	1260	
Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	1265	1270	1275	Glu Met Trp
Asn Lys Lys Lys His His Arg Asn Phe Tyr Asp Leu Asn Phe Arg	1280	1285	1290	
Arg Thr Ala Arg Thr Lys Gly Thr Glu His Arg Gly Ser Arg Leu	1295	1300	1305	
Ser Ser Ser Ser Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	1310	1315	1320	Ser Ala Tyr
Arg His Lys Ala Lys Phe Leu Gly Asp Lys Glu Pro Pro Val Leu	1325	1330	1335	
Val Val Thr Phe Lys Ala Val Arg Asn Asp Asn Thr Lys Gln Gly	1340	1345	1350	
Tyr Gln Met Val Val Tyr Gln Glu Tyr His Ser Ser Lys Gln Gln	1355	1360	1365	
Ile Gln Ala Tyr Val Met Asp Ile Ser Lys Thr Arg Trp Ala Ala	1370	1375	1380	

Cys Phe Asp Ala Val Val Val Asn Pro His Glu Ala Gln Ala Ser
 1385 1390 1395
 Leu Lys Trp Gly Gln Asn Cys Gln Asp Tyr Lys Ile Asn Met Lys
 1400 1405 1410
 Ala Glu Thr Gly Asn Phe Gly Asn Gln Pro Ala Leu Arg Val Thr
 1415 1420 1425
 Ala Asn Trp Pro Lys Ile Pro Ser Lys Trp Lys Ser Thr Gly Lys
 1430 1435 1440
 Val Val Gly Glu Tyr Val Pro Gly Ala Met Tyr Met Met Gly Phe
 1445 1450 1455
 Gln Gly Glu Tyr Lys Arg Asn Ser Gln Arg Gln Val Lys Leu Val
 1460 1465 1470
 Phe Ala Leu Ser Ser Pro Arg Thr Cys Asp Val Val Ile Arg Ile
 1475 1480 1485
 Pro Arg Leu Thr Val Tyr Tyr Arg Ala Leu Arg Leu Pro Val Pro
 1490 1495 1500
 Ile Pro Val Gly His His Ala Lys Glu Asn Val Leu Gln Thr Pro
 1505 1510 1515
 Thr Trp Asn Ile Phe Ala Glu Ala Pro Lys Leu Ile Met Asp Ser
 1520 1525 1530
 Ile Gln Gly Glu Cys Lys Val Ala Gln Asp Gln Ile Thr Thr Phe
 1535 1540 1545
 Asn Gly Val Asp Leu Ala Ser Ala Leu Pro Glu Asn Cys Tyr Asn
 1550 1555 1560
 Val Leu Ala Gln Asp Cys Ser Pro Glu Met Lys Phe Met Val Leu
 1565 1570 1575
 Met Arg Asn Ser Lys Glu Ser Pro Asn His Lys Asp Ile Asn Val
 1580 1585 1590
 Lys Leu Gly Glu Tyr Asp Ile Asp Met Tyr Tyr Ser Ala Asp Ala
 1595 1600 1605
 Phe Lys Met Lys Ile Asn Asn Leu Glu Val Ser Glu Glu His Leu
 1610 1615 1620
 Pro Tyr Lys Ser Phe Asn Tyr Pro Thr Val Glu Ile Lys Lys Lys
 1625 1630 1635
 Gly Asn Gly Val Ser Leu Ser Ala Ser Glu Tyr Gly Ile Asp Ser

1640 1645 1650
 Leu Asp Tyr Asp Gly Leu Thr Phe Lys Phe Arg Pro Thr Ile Trp
 1655 1660 1665
 Met Lys Gly Lys Thr Cys Gly Ile Cys Gly His Asn Asp Asp Glu
 1670 1675 1680
 Ser Glu Lys Glu Leu Gln Met Pro Asp Gly Ser Val Ala Lys Asp
 1685 1690 1695
 Gln Met Arg Phe Ile His Ser Trp Ile Leu Pro Ala Glu Ser Cys
 1700 1705 1710
 Ser Glu Gly Cys Asn Leu Lys His Thr Leu Val Lys Leu Glu Lys
 1715 1720 1725
) Ala Ile Ala Thr Asp Gly Ala Lys Ala Lys Cys Tyr Ser Val Gln
 1730 1735 1740
 Pro Val Leu Arg Cys Ala Lys Gly Cys Ser Pro Val Lys Thr Val
 1745 1750 1755
 Glu Val Ser Thr Gly Phe His Cys Leu Pro Ser Asp Val Ser Leu
 1760 1765 1770
 Asp Leu Pro Glu Gly Gln Ile Arg Leu Glu Lys Ser Glu Asp Phe
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 Ser Glu Lys Val Glu Ala His Thr Ala Cys Ser Cys Glu Thr Ser
 1790 1795 1800
 Pro Cys Ala Ala
 1805
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 <213> Gallus gallus
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 Lys Phe Asp Ile Asp Pro Gly Phe Asn Ser Arg Arg Ser Tyr Leu Tyr
 20 25 30
 Asn Tyr Glu Gly Ser Met Leu Asn Gly Leu Gln Asp Arg Ser Leu Gly
 35 40 45
 Lys Ala Gly Val Arg Leu Ser Ser Lys Leu Glu Ile Ser Gly Leu Pro
 50 55 60

Glu Asn Ala Tyr Leu Leu Lys Val Arg Ser Pro Gln Val Glu Glu Tyr
 65 70 75 80
 Asn Gly Val Trp Pro Arg Asp Pro Phe Thr Arg Ser Ser Lys Ile Thr
 85 90 95
 Gln Val Ile Ser Ser Cys Phe Thr Arg Leu Phe Lys Phe Glu Tyr Ser
 100 105 110
 Ser Gly Arg Ile Gly Asn Ile Tyr Ala Pro Glu Asp Cys Pro Asp Leu
 115 120 125
 Cys Val Asn Ile Val Arg Gly Ile Leu Asn Met Phe Gln Met Thr Ile
 130 135 140
 Lys Lys Ser Gln Asn Val Tyr Glu Leu Gln Glu Ala Gly Ile Gly Gly
 145 150 155 160
 Ile Cys His Ala Arg Tyr Val Ile Gln Glu Asp Arg Lys Asn Ser Arg
 165 170 175
 Ile Tyr Val Thr Arg Thr Val Asp Leu Asn Asn Cys Gln Glu Lys Val
 180 185 190
 Gln Lys Ser Ile Gly Met Ala Tyr Ile Tyr Pro Cys Pro Val Asp Val
 195 200 205
 Met Lys Glu Arg Leu Thr Lys Gly Thr Thr Ala Phe Ser Tyr Lys Leu
 210 215 220
 Lys Gln Ser Asp Ser Gly Thr Leu Ile Thr Asp Val Ser Ser Arg Gln
 225 230 235 240
 Val Tyr Gln Ile Ser Pro Phe Asn Glu Pro Thr Gly Val Ala Val Met
 245 250 255
 Glu Ala Arg Gln Gln Leu Thr Leu Val Glu Val Arg Ser Glu Arg Gly
 260 265 270
 Ser Ala Pro Asp Val Pro Met Gln Asn Tyr Gly Ser Leu Arg Tyr Arg
 275 280 285
 Phe Pro Ala Val Leu Pro Gln Met Pro Leu Gln Leu Ile Lys Thr Lys
 290 295 300
 Asn Pro Glu Gln Arg Ile Val Glu Thr Leu Gln His Ile Val Leu Asn
 305 310 315 320
 Asn Gln Gln Asp Phe His Asp Asp Val Ser Tyr Arg Phe Leu Glu Val
 325 330 335
 Val Gln Leu Cys Arg Ile Ala Asn Ala Asp Asn Leu Glu Ser Ile Trp
 340 345 350

Arg Gln Val Ser Asp Lys Pro Arg Tyr Arg Arg Trp Leu Leu Ser Ala
355 360 365

Val Ser Ala Ser Gly Thr Thr Glu Thr Leu Lys Phe Leu Lys Asn Arg
370 375 380

Ile Arg Asn Asp Asp Leu Asn Tyr Ile Gln Thr Leu Leu Thr Val Ser
385 390 395 400

Leu Thr Leu His Leu Leu Gln Ala Asp Glu His Thr Leu Pro Ile Ala
405 410 415

Ala Asp Leu Met Thr Ser Ser Arg Ile Gln Lys Asn Pro Val Leu Gln
420 425 430

Gln Val Ala Cys Leu Gly Tyr Ser Ser Val Val Asn Arg Tyr Cys Ser
435 440 445

Gln Thr Ser Ala Cys Pro Lys Glu Ala Leu Gln Pro Ile His Asp Leu
450 455 460

Ala Asp Glu Ala Ile Ser Arg Gly Arg Glu Asp Lys Met Lys Leu Ala
465 470 475 480

Leu Lys Cys Ile Gly Asn Met Gly Glu Pro Ala Ser Leu Lys Arg Ile
485 490 495

Leu Lys Phe Leu Pro Ile Ser Ser Ser Ser Ala Ala Asp Ile Pro Val
500 505 510

His Ile Gln Ile Asp Ala Ile Thr Ala Leu Lys Lys Ile Ala Trp Lys
515 520 525

Asp Pro Lys Thr Val Gln Gly Tyr Leu Ile Gln Ile Leu Ala Asp Gln
530 535 540

Ser Leu Pro Pro Glu Val Arg Met Met Ala Cys Ala Val Ile Phe Glu
545 550 555 560

Thr Arg Pro Ala Leu Ala Leu Ile Thr Thr Ile Ala Asn Val Ala Met
565 570 575

Lys Glu Ser Lys Thr Asn Met Gln Val Ala Ser Phe Val Tyr Ser His
580 585 590

Met Lys Ser Leu Ser Lys Ser Arg Leu Pro Phe Met Tyr Asn Ile Ser
595 600 605

Ser Ala Cys Asn Ile Ala Leu Lys Leu Leu Ser Pro Lys Leu Asp Ser
610 615 620

Met Ser Tyr Arg Tyr Ser Lys Val Ile Arg Ala Asp Thr Tyr Phe Asp
 625 630 635 640

Asn Tyr Arg Val Gly Ala Thr Gly Glu Ile Phe Val Val Asn Ser Pro
 645 650 655

Arg Thr Met Phe Pro Ser Ala Ile Ile Ser Lys Leu Met Ala Asn Ser
 660 665 670

Ala Gly Ser Val Ala Asp Leu Val Glu Val Gly Ile Arg Val Glu Gly
 675 680 685

Leu Ala Asp Val Ile Met Lys Arg Asn Ile Pro Phe Ala Glu Tyr Pro
 690 695 700

Thr Tyr Lys Gln Ile Lys Glu Leu Gly Lys Ala Leu Gln Gly Trp Lys
 705 710 715 720

Glu Leu Pro Thr Glu Thr Pro Leu Val Ser Ala Tyr Leu Lys Ile Leu
 725 730 735

Gly Gln Glu Val Ala Phe Ile Asn Ile Asn Lys Glu Leu Leu Gln Gln
 740 745 750

Val Met Lys Thr Val Val Glu Pro Ala Asp Arg Asn Ala Ala Ile Lys
 755 760 765

Arg Ile Ala Asn Gln Ile Leu Asn Ser Ile Ala Gly Gln Trp Thr Gln
 770 775 780

Pro Val Trp Met Gly Glu Leu Arg Tyr Val Val Pro Ser Cys Leu Gly
 785 790 795 800

Leu Pro Leu Glu Tyr Gly Ser Tyr Thr Thr Ala Leu Ala Arg Ala Ala
 805 810 815

Val Ser Val Glu Gly Lys Met Thr Pro Pro Leu Thr Gly Asp Phe Arg
 820 825 830

Leu Ser Gln Leu Leu Glu Ser Thr Met Gln Ile Arg Ser Asp Leu Lys
 835 840 845

Pro Ser Leu Tyr Val His Thr Val Ala Thr Met Gly Val Asn Thr Glu
 850 855 860

Tyr Phe Gln His Ala Val Glu Ile Gln Gly Glu Val Gln Thr Arg Met
 865 870 875 880

Pro Met Lys Phe Asp Ala Lys Ile Asp Val Lys Leu Lys Asn Leu Lys
 885 890 895

Ile Glu Thr Asn Pro Cys Arg Glu Glu Thr Glu Ile Val Val Gly Arg
 900 905 910

His Lys Ala Phe Ala Val Ser Arg Asn Ile Gly Glu Leu Gly Val Glu
915 920 925

Lys Arg Thr Ser Ile Leu Pro Glu Asp Ala Pro Leu Asp Val Thr Glu
930 935 940

Glu Pro Phe Gln Thr Ser Glu Arg Ala Ser Arg Glu His Phe Ala Met
945 950 955 960

Gln Gly Pro Asp Ser Met Pro Arg Lys Gln Ser His Ser Ser Arg Glu
965 970 975

Asp Leu Arg Arg Ser Thr Gly Lys Arg Ala His Lys Arg Asp Ile Cys
980 985 990

Leu Lys Met His His Ile Gly Cys Gln Leu Cys Phe Ser Arg Arg Ser
995 1000 1005

Arg Asp Ala Ser Phe Ile Gln Asn Thr Tyr Leu His Lys Leu Ile
1010 1015 1020

Gly Glu His Glu Ala Lys Ile Val Leu Met Pro Val His Thr Asp
1025 1030 1035

Ala Asp Ile Asp Lys Ile Gln Leu Glu Ile Gln Ala Gly Ser Arg
1040 1045 1050

Ala Ala Ala Arg Ile Ile Thr Glu Val Asn Pro Glu Ser Glu Glu
1055 1060 1065

Glu Asp Glu Ser Ser Pro Tyr Glu Asp Ile Gln Ala Lys Leu Lys
1070 1075 1080

Arg Ile Leu Gly Ile Asp Ser Met Phe Lys Val Ala Asn Lys Thr
1085 1090 1095

Arg His Pro Lys Asn Arg Pro Ser Lys Lys Gly Asn Thr Val Leu
1100 1105 1110

Ala Glu Phe Gly Thr Glu Pro Asp Ala Lys Thr Ser Ser Ser Ser
1115 1120 1125

Ser Ser Ala Ser Ser Thr Ala Thr Ser Ser Ala Ser Ser Ser Ala
1130 1135 1140

Ser Ser Pro Asn Arg Lys Lys Pro Met Asp Glu Glu Glu Asn Asp
1145 1150 1155

Gln Val Lys Gln Ala Arg Asn Lys Asp Ala Ser Ser Ser Ser Arg
1160 1165 1170

Ser Ser Lys Ser Ser Asn Ser Ser Lys Arg Ser Ser Ser Lys Ser
 1175 1180 1185
 Ser Asn Ser Ser Lys Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser
 1190 1195 1200
 Ser Ser Ser Arg Ser Ser Ser Ser Ser Ser Ser Ser Ser Asn
 1205 1210 1215
 Ser Lys Ser Ser Ser Ser Ser Lys Ser Ser Ser Ser Ser Ser Ser
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 Arg Ser Arg Ser Ser Ser Lys Ser Ser Ser Ser Ser Ser Ser Ser
 1235 1240 1245
 Ser Ser Ser Ser Ser Ser Lys Ser Ser Ser Ser Arg Ser Ser Ser
 1250 1255 1260
 Ser Ser Ser Lys Ser Ser Ser His His Ser His Ser His His Ser
 1265 1270 1275
 Gly His Leu Asn Gly Ser Ser Ser Ser Ser Ser Ser Arg Ser
 1280 1285 1290
 Val Ser His His Ser His Glu His His Ser Gly His Leu Glu Asp
 1295 1300 1305
 Asp Ser Ser Ser Ser Ser Ser Ser Ser Val Leu Ser Lys Ile Trp
 1310 1315 1320
 Gly Arg His Glu Ile Tyr Gln Tyr Arg Phe Arg Ser Ala His Arg
 1325 1330 1335
 Gln Glu Phe Pro Lys Arg Lys Leu Pro Gly Asp Arg Ala Thr Ser
 1340 1345 1350
 Arg Tyr Ser Ser Thr Arg Ser Ser His Asp Thr Ser Arg Ala Ala
 1355 1360 1365
 Ser Trp Pro Lys Phe Leu Gly Asp Ile Lys Thr Pro Val Leu Ala
 1370 1375 1380
 Ala Phe Leu His Gly Ile Ser Asn Asn Lys Lys Thr Gly Gly Leu
 1385 1390 1395
 Gln Leu Val Val Tyr Ala Asp Thr Asp Ser Val Arg Pro Arg Val
 1400 1405 1410
 Gln Val Phe Val Thr Asn Leu Thr Asp Ser Ser Lys Trp Lys Leu
 1415 1420 1425
 Cys Ala Asp Ala Ser Val Arg Asn Ala Pro Gln Ala Val Ala Tyr
 1430 1435 1440

Val Lys Trp Gly Trp Asp Cys Arg Asp Tyr Lys Val Ser Thr Glu
 1445 1450 1455
 Leu Val Thr Gly Arg Phe Ala Gly His Pro Ala Ala Gln Val Lys
 1460 1465 1470
 Leu Glu Trp Pro Lys Val Pro Ser Asn Val Arg Ser Val Val Glu
 1475 1480 1485
 Trp Phe Tyr Glu Phe Val Pro Gly Ala Ala Phe Met Leu Gly Phe
 1490 1495 1500
 Ser Glu Arg Met Asp Lys Asn Pro Ser Arg Gln Ala Arg Met Val
 1505 1510 1515
 Val Ala Leu Thr Ser Pro Arg Thr Cys Asp Val Val Val Lys Leu
 1520 1525 1530
 Pro Asp Ile Ile Leu Tyr Gln Lys Ala Val Arg Leu Pro Leu Ser
 1535 1540 1545
 Leu Pro Val Gly Pro Arg Ile Pro Ala Ser Glu Leu Gln Pro Pro
 1550 1555 1560
 Ile Trp Asn Val Phe Ala Glu Ala Pro Ser Ala Val Leu Glu Asn
 1565 1570 1575
 Leu Lys Ala Arg Cys Ser Val Ser Tyr Asn Lys Ile Lys Thr Phe
 1580 1585 1590
 Asn Glu Val Lys Phe Asn Tyr Ser Met Pro Ala Asn Cys Tyr His
 1595 1600 1605
 Ile Leu Val Gln Asp Cys Ser Ser Glu Leu Lys Phe Leu Val Met
 1610 1615 1620
 Met Lys Ser Ala Gly Glu Ala Thr Asn Leu Lys Ala Ile Asn Ile
 1625 1630 1635
 Lys Ile Gly Ser His Glu Ile Asp Met His Pro Val Asn Gly Gln
 1640 1645 1650
 Val Lys Leu Leu Val Asp Gly Ala Glu Ser Pro Thr Ala Asn Ile
 1655 1660 1665
 Ser Leu Ile Ser Ala Gly Ala Ser Leu Trp Ile His Asn Glu Asn
 1670 1675 1680
 Gln Gly Phe Ala Leu Ala Ala Pro Gly His Gly Ile Asp Lys Leu
 1685 1690 1695

Tyr Phe Asp Gly Lys Thr Ile Thr Ile Gln Val Pro Leu Trp Met
1700 1705 1710

Ala Gly Lys Thr Cys Gly Ile Cys Gly Lys Tyr Asp Ala Glu Cys
1715 1720 1725

Glu Gln Glu Tyr Arg Met Pro Asn Gly Tyr Leu Ala Lys Asn Ala
1730 1735 1740

Val Ser Phe Gly His Ser Trp Ile Leu Glu Glu Ala Pro Cys Arg
1745 1750 1755

Gly Ala Cys Lys Leu His Arg Ser Phe Val Lys Leu Glu Lys Thr
1760 1765 1770

Val Gln Leu Ala Gly Val Asp Ser Lys Cys Tyr Ser Thr Glu Pro
1775 1780 1785

Val Leu Arg Cys Ala Lys Gly Cys Ser Ala Thr Lys Thr Thr Pro
1790 1795 1800

Val Thr Val Gly Phe His Cys Leu Pro Ala Asp Ser Ala Asn Ser
1805 1810 1815

Leu Thr Asp Lys Gln Met Lys Tyr Asp Gln Lys Ser Glu Asp Met
1820 1825 1830

Gln Asp Thr Val Asp Ala His Thr Thr Cys Ser Cys Glu Asn Glu
1835 1840 1845

Glu Cys Ser Thr
1850

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<213> Ichthyomyzon unicuspis

<400> 20

Met Trp Lys Leu Leu Leu Val Ala Leu Ala Phe Ala Leu Ala Asp Ala
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Gln Phe Gln Pro Gly Lys Val Tyr Arg Tyr Ser Tyr Asp Ala Phe Ser
20 25 30

Ile Ser Gly Leu Pro Glu Pro Gly Val Asn Arg Ala Gly Leu Ser Gly
35 40 45

Glu Met Lys Ile Glu Ile His Gly His Thr His Asn Gln Ala Thr Leu
50 55 60

Lys Ile Thr Gln Val Asn Leu Lys Tyr Phe Leu Gly Pro Trp Pro Ser
65 70 75 80

Asp Ser Phe Tyr Pro Leu Thr Ala Gly Tyr Asp His Phe Ile Gln Gln
 85 90 95
 Leu Glu Val Pro Val Arg Phe Asp Tyr Ser Ala Gly Arg Ile Gly Asp
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 Ile Tyr Ala Pro Pro Gln Val Thr Asp Thr Ala Val Asn Ile Val Arg
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 Gly Ile Leu Asn Leu Phe Gln Leu Ser Leu Lys Lys Asn Gln Gln Thr
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 Phe Glu Leu Gln Glu Thr Gly Val Glu Gly Ile Cys Gln Thr Thr Tyr
 145 150 155 160
 Val Val Gln Glu Gly Tyr Arg Thr Asn Glu Met Ala Val Val Lys Thr
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 Lys Asp Leu Asn Asn Cys Asp His Lys Val Tyr Lys Thr Met Gly Thr
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 Phe Asp Ile Lys Glu Gly Asn Val Val Ile Glu Ser Arg Gln Lys Leu
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 Ile Leu Glu Gly Ile Gln Ser Ala Pro Ala Ala Ser Gln Ala Ala Ser
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 Leu Gln Asn Arg Gly Gly Leu Met Tyr Lys Phe Pro Ser Ser Ala Ile
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 Thr Lys Met Ser Ser Leu Phe Val Thr Lys Gly Lys Asn Leu Glu Ser
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 Glu Ile His Thr Val Leu Lys His Leu Val Glu Asn Asn Gln Leu Ser
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 Val His Glu Asp Ala Pro Ala Lys Phe Leu Arg Leu Thr Ala Phe Leu
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 Arg Asn Val Asp Ala Gly Val Leu Gln Ser Ile Trp His Lys Leu His
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 Gln Gln Lys Asp Tyr Arg Arg Trp Ile Leu Asp Ala Val Pro Ala Met

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 Asn Gln Gln Ala Thr Arg Glu Ser Leu Ser Tyr Ala Arg Glu Leu Leu
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 His Thr Ser Phe Ile Arg Asn Arg Pro Ile Leu Arg Lys Thr Ala Val
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 Leu Gly Tyr Gly Ser Leu Val Phe Arg Tyr Cys Ala Asn Thr Val Ser
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 Ser Asp Arg Ala Asp Glu Glu Glu Ile Val Leu Ala Leu Lys Ala Leu
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 Gly Asn Ala Gly Gln Pro Asn Ser Ile Lys Lys Ile Gln Arg Phe Leu
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 Glu Ala Ile Met Ala Leu Arg Asn Ile Ala Lys Arg Asp Pro Arg Lys
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 Val Ala Leu Val Ser Met Val Ala Val Arg Leu Arg Arg Glu Pro Asn
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 Leu Gln Val Ala Ser Phe Val Tyr Ser Gln Met Arg Ser Leu Ser Arg
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 Ser Ser Asn Pro Glu Phe Arg Asp Val Ala Ala Ala Cys Ser Val Ala
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 Asp Thr Leu Arg Lys Leu Ser Asp Trp Lys Ser Val Pro Glu Glu Arg
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 Asp Leu Leu Ala Thr Asn Ile Glu Leu Arg Val Ala Ala Thr Thr Ser
 850 855 860
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 865 870 875 880
 Lys Ala Gly Met Gln Thr His Tyr Lys Thr Ser Ala Gly Leu Gly Val
 885 890 895
 Asn Gly Lys Ile Glu Met Asn Ala Arg Glu Ser Asn Phe Lys Ala Ser
 900 905 910
 Leu Lys Pro Phe Gln Gln Lys Thr Val Val Val Leu Ser Thr Met Glu

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Gln Gln Pro His His Gln Gln Gln Pro His Gln His Gly Gln Asp Gln 965 970 975		
Ala Arg Ala Ala Tyr Gln Arg Pro Trp Ala Ser His Glu Phe Ser Pro 980 985 990		
Ala Glu Gln Lys Gln Ile His Asp Ile Met Thr Ala Arg Pro Val Met 995 1000 1005		
Arg Arg Lys Gln His Cys Ser Lys Ser Ala Ala Leu Ser Ser Lys 1010 1015 1020		
Val Cys Phe Ser Ala Arg Leu Arg Asn Ala Ala Phe Ile Arg Asn 1025 1030 1035		
Ala Leu Leu Tyr Lys Ile Thr Gly Asp Tyr Val Ser Lys Val Tyr 1040 1045 1050		
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Glu Leu Gln Ala Gly Pro Gln Ala Ala Glu Lys Val Ile Arg Met 1070 1075 1080		
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Lys Lys Ile Leu Ser Ser Asp Lys Asp Lys Asp Ala Lys Lys Pro 1115 1120 1125		
Pro Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser 1130 1135 1140		
Ser Ser Ser Ser Ser Asp Lys Ser Gly Lys Lys Thr Pro Arg Gln 1145 1150 1155		
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Arg Gly Lys Asp Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser 1175 1180 1185		

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 Cys Gln Gln Tyr Arg Ala Met Leu Glu Ala Ser Thr Gly Asn Leu
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 Gln Ser His Pro Ala Ala Arg Val Asp Ile Lys Trp Gly Arg Leu

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Pro Ser Ser Leu Gln Arg Ala Lys Asn Ala Leu Leu Glu Asn Lys		
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Ala Pro Val Ile Ala Ser Lys Leu Glu Met Glu Ile Met Pro Lys		
1475	1480	1485
Lys Asn Gln Lys His Gln Val Ser Val Ile Leu Ala Ala Met Thr		
1490	1495	1500
Pro Arg Arg Met Asn Ile Ile Val Lys Leu Pro Lys Val Thr Tyr		
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Phe Gln Gln Gly Ile Leu Leu Pro Phe Thr Phe Pro Ser Pro Arg		
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Phe Trp Asp Arg Pro Glu Gly Ser Gln Ser Asp Ser Leu Pro Ala		
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Gln Ile Ala Ser Ala Phe Ser Gly Ile Val Gln Asp Pro Val Ala		
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Ser Ala Cys Glu Leu Asn Glu Gln Ser Leu Thr Thr Phe Asn Gly		
1565	1570	1575
Ala Phe Phe Asn Tyr Asp Met Pro Glu Ser Cys Tyr His Val Leu		
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Ala Gln Glu Cys Ser Ser Arg Pro Pro Phe Ile Val Leu Ile Lys		
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Leu Asp Ser Glu Arg Arg Ile Ser Leu Glu Leu Gln Leu Asp Asp		
1610	1615	1620
Lys Lys Val Lys Ile Val Ser Arg Asn Asp Ile Arg Val Asp Gly		
1625	1630	1635
Glu Lys Val Pro Leu Arg Arg Leu Ser Gln Lys Asn Gln Tyr Gly		
1640	1645	1650
Phe Leu Val Leu Asp Ala Gly Val His Leu Leu Leu Lys Tyr Lys		
1655	1660	1665
Asp Leu Arg Val Ser Phe Asn Ser Ser Ser Val Gln Val Trp Val		
1670	1675	1680
Pro Ser Ser Leu Lys Gly Gln Thr Cys Gly Leu Cys Gly Arg Asn		
1685	1690	1695
Asp Asp Glu Leu Val Thr Glu Met Arg Met Pro Asn Leu Glu Val		
1700	1705	1710

Ala Lys Asp Phe Thr Ser Phe Ala His Ser Trp Ile Ala Pro Asp
1715 1720 1725

Glu Thr Cys Gly Gly Ala Cys Ala Leu Ser Arg Gln Thr Val His
1730 1735 1740

Lys Glu Ser Thr Ser Val Ile Ser Gly Ser Arg Glu Asn Cys Tyr
1745 1750 1755

Ser Thr Glu Pro Ile Met Arg Cys Pro Ala Thr Cys Ser Ala Ser
1760 1765 1770

Arg Ser Val Pro Val Ser Val Ala Met His Cys Leu Pro Ala Glu
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Ser Glu Ala Ile Ser Leu Ala Met Ser Glu Gly Arg Pro Phe Ser
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